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PROGRAM OF STUDIES FOR SENIOR HIGH SCHOOLS

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ADDENDUM

(Please affix to p. 197c [Chem. 30]
Senior High School Program of Studies)

Elective topics are to be chosen from the following list. A minimum of two topics are to be studied.

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NOTE: Outlines for each elective unit, with the exception of those developed locally, are provided in the Curriculum Guide. A list of references and resource materials is also provided.



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INTRODUCTION

This Program of Studies contains an outline content of each course in the Senior High School together with a list of the recommended texts and approved secondary references. Regulations with respect to the credit value of courses, examinations and other matters relating to the operation of the high school appear in the current issue of the *Junior-Senior High School Handbook*.

Teachers who want suggestions concerning methods of handling a given course will find them in the related curriculum guide which may be obtained through the office of their superintendent or purchased from the Printing and Stationery Branch, Department of Education.

The assistance of committees in preparing the outlines in the various subjects is gratefully acknowledged.

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PROGRAM OF STUDIES

FOR

SENIOR HIGH SCHOOLS

This Program of Studies is issued under the authority of the Minister of Education pursuant to Section 12 of The School Act.

Alberta
Education
1975

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The assistance of committees in preparing the outlines in the various subjects is gratefully acknowledged.

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GOALS OF BASIC EDUCATION*

In a world characterized by rapid change, yet counterbalanced by stabilizing influences, education must provide opportunities for students to meet individual and societal needs. This statement of goals is intended to give direction to the development of educational programs for Grades I - XII which will assist in meeting that dual set of needs.

*Status of
Goals
Statement*

As the variety among individuals and societies is broad, no attempt is made to place the goals in any order of importance. Such priorities might more appropriately be made at system or school levels. Despite the absence of stated priorities, none of the goals are to be deleted but complementary goals may be added.

In this regard goals concerning the relationship of people to a deity will have special significance for certain populations. Other goal areas may be of prime interest to other groups. Nevertheless the goals which follow, combined with such complementary goals as may be deemed necessary, form the basis for directing the educational endeavours of schools and school systems.

Finally, subsections under each goal are not meant to be inclusive but indicative of the intent of the goal.

1. Learn to be a good citizen.
 - a. Develop an awareness of civic rights and responsibilities.
 - b. Develop an understanding of the Canadian and other forms of government.
 - c. Develop a feeling of cultural identity and heritage at national and international levels.
 - d. Develop an attitude of respect for public and private property.
 - e. Develop an understanding of the obligation and responsibilities of Canadian and world citizenship.
2. Learn about and try to understand the changes that take place in the world.
 - a. Develop ability to adjust to the changing demands of Canadian society.
 - b. Develop an awareness of and the ability to adjust to a changing social and physical environment.
 - c. Develop understanding of the past, identity with the present and the ability to meet the future.
3. Develop skills in communication (listening, speaking, reading, writing, viewing).
 - a. Develop skill in understanding the communication of others.

* Excerpt from 1975 Interim Edition of *Goals of Basic Education, Grades 1 - 12*, as prepared by the Department of Education.

- b. Develop ability in communicating ideas and feelings effectively.
 - c. Develop skill in oral and written languages.
- 4. Learn how to organize, analyze and use information in a critical and objective manner.
 - a. Develop ability to organize information into meaningful categories.
 - b. Develop ability to apply scientific methods in the pursuit of and analysis of knowledge.
 - c. Develop skills of thinking and proceeding logically.
- 5. Learn to respect and to get along with people of varying beliefs and life styles.
 - a. Develop appreciation and respect for the worth and dignity of individuals.
 - b. Develop an understanding of functions, responsibilities and achievements of various societal institutions.
 - c. Learn to take into account the values of others when making personal choices.
- 6. Learn about the world of work.
 - a. Develop a feeling of pride in achievement and progress.
 - b. Develop the ability to use information and counselling services related to career decisions.
 - c. Develop skills basic to the world of work.
- 7. Develop management skills.
 - a. Develop an understanding of economic principles and responsibilities.
 - b. Develop skills in managing natural, financial and human resources.
- 8. Develop a desire for learning.
 - a. Develop intellectual curiosity and eagerness for lifelong learning.
 - b. Develop a positive attitude toward learning.
- 9. Learn how to use leisure time.
 - a. Develop interests which will lead to a wise and satisfying use of leisure time.
 - b. Develop a positive attitude toward participation in a range of leisure time activities - physical, intellectual and creative.
- 10. Practice and understand the ideas of health, fitness and safety.
 - a. Develop an understanding of good physical and mental health practices.
 - b. Establish a good physical fitness program.
 - c. Establish sound personal health habits.

11. Appreciate culture and beauty in the world.
 - a. Develop creative self-expression through various media including the fine and practical arts.
 - b. Develop special talents in the arts.
 - c. Cultivate appreciation for beauty in various forms.
12. Develop basic and special knowledge competencies.
 - a. Develop understanding and skills in the use of numbers, natural sciences, mathematics and social sciences.
 - b. Develop a fund of information and concepts.
 - c. Develop special interests and abilities.

SENIOR HIGH SCHOOL ART

General Comments

Five courses are offered in Senior High School Art. These new courses have been planned to help students develop a positive attitude towards art by providing structure and continuity in the program.

Arts 10, a basic general art course, is offered for all Alberta high school students. This program combines and replaces the previous art courses — Art 10 and Arts and Crafts 10. The student should develop some understanding and awareness of the art achievements of the past and present.

Art 20 is a study of drawing, painting, printmaking, sculpture, and environmental design, together with art history related to each area. Art 21 is a study of the creative crafts related to clay, textiles, metal, wood and synthetic materials. Arts 10 is a prerequisite for either Art 20 or Art 21. Art 20 and Art 21 may be taken concurrently.

Art 30 is a study in depth of drawing, painting, printmaking, and sculpture. Art 20 is a prerequisite for Art 30. Art 31 is a study in depth of selected areas from the Art 21 program, and Art 21 is the prerequisite of Art 31. Art 30 and Art 31 may be taken concurrently.

Ideally, all high school students should have experiences in art both as consumers and as producers. Through the use of slide and film presentations, lectures, discussions, demonstrations, and experiments with line, shape, tone, color, and texture in a variety of media, students should develop a greater sensitivity to aesthetic values in nature and in art. They should develop the ability to make independent and discriminating judgments as consumers of all sorts of man-designed objects in daily use. They should discover in art a means of understanding other cultures and of providing a source of deep personal satisfaction. The basic course, which involves training in the principles of the structure of art, is necessary for effective achievement in subsequent, more specialized courses.

These courses differ from the previous art courses in their emphasis on design and exposure to a broader range of media. They should be taught only by qualified art teachers, as the strength of the program depends on the ability, experience and enthusiasm of the teacher. The art classroom should contain a projector and screen for viewing slides; classroom reference books on art; working space, storage space, and exhibition areas for both two- and three-dimensional work. Instruction will be facilitated by installing a screen and projection facilities within the art room, so the instructor will be able to combine the use of visual aids with ongoing activities.

Objectives

To help the student:

- develop perceptual awareness and sensitivity; to see, feel and appreciate design in the world
- develop an awareness and understanding of the art of the past and the present
- develop his ability to apply his understanding of design principles to self-expression in art and everyday living
- develop in the various areas of the visual arts, such skills and techniques as may be necessary for the student's self-expression.

Student involvement will be continually influenced by the changing social patterns which may create a desire to investigate:

- contemporary and emerging art forms
- contemporary and emerging artistic vocabulary
- contemporary and emerging materials.

ARTS 10

Course Content

The Arts 10 course is divided into eight separate units. In the normal school year approximately four weeks would be given to each. Each unit is considered of equal importance. The general content of each unit is outlined below; the program within these broad general areas should be structured by the art teacher, making use of the grid in the teacher's guide. Except for the design unit and the one on individual projects which falls at the end of the course, the units may be studied in any desired order.

Art history is to be incorporated into all units. For purposes of this course, it is recommended that the five main periods surveyed include: ancient art, medieval art, renaissance art, nineteenth century art and modern art.

Work within each unit should further the objectives of the course. The importance of both aspects of the course, understanding and expressing, cannot be over-emphasized. However, the time allotted to either area of involvement will depend on the approach of the teacher and how the various units and activities of the program interrelate. It may be advantageous, in the judgment of the teacher, to begin some units with appropriate activities and work through these to appreciation and understanding.

A.— Design

1. Language of design
 - (a) elements and principles

B.— Drawing

1. Contour
2. Gesture
3. Mass
4. Finished Compositions

C.— Painting

1. Pattern
2. Form
3. Composition

D.— Printmaking

1. Surface Printing
2. Relief Printing
3. Stencil Printing (as in silkscreen)

E.— Sculpture (clay, wood, metal, snow, ice, synthetics)

1. Relief sculpture
2. Three-dimensional forms

F.— Crafts (the decorative arts)

1. Ceramics
 - (a) hand building
 - (b) decorating

2. Fabrics
 - (a) fabric making
 - (b) fabric decorating
3. Metals
 - (a) shaping and joining
 - (b) decorating

G. — Environmental Study

1. Architecture and Surrounding
 - (a) buildings
 - (b) landscaping
 - (c) town planning
2. Product Design
 - (a) designing and advertising consumer goods

H. — Individual Projects

1. One or two additional research projects chosen by each student.

ART 20

Introduction

The Art 20 course is divided into five units — drawing, painting, print-making, sculpture, and environmental design. It is expected that the limited scope of this program will allow greater in-depth study to be made. Further depth could be accomplished by incorporating drawing, related history and environmental design as they apply to painting, printmaking and sculpture. All units should be preceded by a review of the appropriate basic units in Arts 10 in order to ensure smooth transition.

It is important that a student at this level be given increased opportunity to acquire greater proficiency in expressing himself both orally and in written assignments, and, therefore, he should be familiar with the terminology specific to each unit as it develops throughout the total high school art program.

Teacher and student must always be conscious of the balance between the study of works of art, individual creativity, experimentation, and skill in the use of tools and materials. The goal is neither perfection in techniques nor a memorization of historical and theoretical facts, but an involvement in a variety of art fields in sufficient depth to allow the student to assess his true interest and potential.

As an aid to greater aesthetic understanding and growth of skills, the student is encouraged to make comparative studies of the art forms of the past and present. Besides making use of the learning opportunities within the classroom, he should carry out independent research and experimentation in areas of specific interest to himself. He should assume more responsibility in planning and evaluating his own projects, and in discussing problems of mutual interest with other members of his class.

Through continued attention to the elements and principles of design, the student should become increasingly aware of both good and poor design in his community. He should be encouraged to use sketchbooks, written notes, and photography to record ideas from as many courses as possible.

COURSE CONTENT

A. Drawing

1. Analysis of drawings in relation to final use

2. Recognition of past drawing styles
3. Further development of drawing activity
4. Continued use of sketchbooks.

B. Painting

1. Recognition of painting styles of individual artists
2. The use of painting to record reaction to environment
3. Increased skill and understanding in use of media and tools.

C. Printmaking

1. Study of relationship of drawing and painting to printmaking
2. Comparative study of work of the past
3. Increased skill and understanding in printmaking techniques.

D. Sculpture

1. Comparison and study of the form of natural and man-made objects
2. Study of the expressive qualities of sculpture throughout history
3. Applying the principles of design in creating sculptured forms.

E. Environmental Design

1. Develop an awareness and appreciation of compatibility between man-made and natural surroundings
2. Comparative review and study of architectural features as they relate to materials and locale
3. The place of painting, printmaking and sculpture in our environment.

ART 21

Introduction

The Art 21 course is divided into five units — design in crafts, clay, wood, metal, and fabric. Arts 10 presented a brief introduction to crafts design and activities, while Art 21 presents an opportunity for depth study in enrichment of functional objects through unique construction and applied decoration.

There is a need for better understanding and appreciation by the general public of the place of the handcrafted objects in our daily life and of the need for improved design in everyday articles. Through a study of man's attempts to relate design to function, appreciation for aesthetic forms can be developed. This study should include an evaluation of the approaches taken by artisans of the past and present.

The student choosing Art 21 should become personally involved in designing objects and working with materials that are used in the production of functional and decorative pieces. He should attempt problems in design which will involve clay, fabrics, metal, wood and synthetics. Decoration must be avoided unless it is an integral part of the whole unit. Each project should be planned carefully, executed with increasing competence in the use of tools and materials, and on completion, evaluated by teacher and student.

The program should be carefully planned to make the most efficient use of facilities and equipment. Reference books and audio-visual material must be readily available to provide for individual study.

COURSE CONTENT

A. **Design as it Applies to Crafts**

1. A review of design principles as they apply specifically to the units of study
2. Continued use of drawing to interpret ideas for designs
3. Appreciation of the role of the artist/craftsman in the machine age.

B. **Clay**

1. Survey of the use of clay in the past and a comparison of cultural styles
2. Consideration of the possibilities and limitations of clay
3. Experimentation and development of clay bodies, building techniques and glazes.

C. **Wood**

1. Survey of outstanding wood crafts of various countries, emphasizing Canadian
2. Awareness of the suitability of wood to its ultimate form and use
3. Development of skill in designing, shaping, assembling, and finishing.

D. **Metal**

1. A review of the traditional and contemporary uses of metal in crafts
2. Applying elements and principles of design to forming and finishing various metals.

E. **Fibers and Fabrics**

1. Survey of fiber and fabric crafts throughout history
2. Development of pattern, texture, and color awareness in relation to fabric
3. Development of skill and discrimination in fabric creation and decoration.

ART 30

Art 30 is an extension of both Arts 10 and Art 20 courses. Art appreciation in the Arts 10 program may be viewed as being concerned with recognition of the art of the past and present, while in Art 20 the emphasis is on comparison of styles and techniques. Art 30 students should continue with both of these approaches, but in addition, should develop ability in assessing the work of others, in self-evaluation, and in personal interpretation.

In the three areas of the Art 30 course — painting, printmaking, and sculpture — the emphasis may be placed on any one unit, on appreciation or on activity. It must not be assumed that the two areas of drawing and environmental design, as in Art 20, are to be omitted; these should be incorporated as an integral part of each of the three activities. Principles and elements of design should form the natural core of every project undertaken.

To develop understanding and techniques in drawing, students should be encouraged to work with both visible and imagined forms. Through a study of the graphic symbolism of other artists, the student should develop his own interpretive style, keeping in mind the value of using minimum lines for maximum meaning. The student should have carefully recorded sketches and notations to be used in completing projects in every area.

The individual student, in consultation with the teachers, should plan a well balanced program. One approach that might be considered is that of deep exploration on one theme, with appropriate interpretation of the idea to apply to different media within one area, or one idea to be used in two or three ongoing activities. For example, a natural form could be the subject chosen for projects executed in various styles and techniques in painting, or it could be the theme for activities in painting, printmaking, and sculpture.

Art 30 students should be well aware of the growth of Canadian art in the 20th century. Art 30 students, in conjunction with Art 31 students, should plan, organize, and set up individual and or group exhibitions in the school and community.

COURSE CONTENT

A. Painting

1. Comparative and critical study of paintings, with the major emphasis on 20th century artists.
2. Study of symbolism
 - a. appreciation — to develop the student's understanding of symbolism as employed by artists
 - b. execution — to develop the student's ability to employ symbolism in his own work as a personal vocabulary
3. Use of design principles and symbolism in developing creative expression through painting.

B. Printmaking

1. A study of contemporary printmaking
2. Individual depth studies in selected areas; for example, block, plate
3. Introduction of a new method, such as lithography, collagraphy
4. Experimental printing
 - a. combining various methods
 - b. using unusual materials
 - c. exploring surface distortions.

C. Sculpture

1. A study of contemporary trends in sculpture, noting:
 - a. simplicity of form
 - b. synthetic, traditional and mixed media
 - c. emerging forms, such as kinetic
2. Personal interpretations in three-dimensional forms
3. Individual depth studies in selected media, for example, one theme executed in various methods.

D. Students Should Present on Completion of Course:

1. Portfolio in two parts
 - a. work completed in class
 - b. work done independently
2. Sketchbooks with notations
3. Design project — illustrated development of some aspect of design
4. Independent written report about one work of art chosen by the student.

ART 31

The Art 31 program is a study in greater depth of the craft designs introduced in Arts 10 and continued in Art 21. Students will have learned to recognize the craft forms used throughout history in numerous geographic areas, and will have compared materials, techniques and styles. At the Art 31 level, the emphasis should be on the study of recent trends in the uses of both old and new materials. Attention should be given to North American crafts, particularly to the work of Canadian artisans.

Art 31 consists of design projects using such traditional materials as clay, metal, fibers and fabrics, as well as synthetics or any suitable combinations, including wood. The emphasis may be placed on any approach — on a particular unit, on appreciation, or on activity. Students should not lose sight of the value of drawing, in developing ideas for projects, or of the design relationship of crafts to environment. As in other art courses, a carefully compiled logbook recording drawings and notations of personal observations is a necessity.

The Art 31 student, in consultation with the teacher, should plan a program which encompasses the major craft forms of expression but which permits him to do some specialization in one particular craft activity. At times it may become necessary to carefully program the projects of Art 31 students in order to provide maximum use of facilities or equipment that may be limited in quantity, such as wheels, torches, looms. Students should be aware of the merit of out-of-class projects and these should be evaluated along with those done during class periods.

Art 31 students, in conjunction with Art 30 students, should plan, organize and set up individual and/or group exhibitions in the school and community.

COURSE CONTENT

There should be a broad involvement in the following areas, but at times it may be necessary to do some selecting based on facilities within the art room.

A. Clay

1. Study of contemporary pottery, noting the work of Canadian potters
2. Further experiences in clay forming methods with individual specialization in one technique
3. Design and execute architectural accents in clay — such as panels, planters, dividers, murals
4. Experimental work in glazes and glazing.

B. Metal

1. Study of the use of metals by contemporary artists/craftsmen
2. Depth study in jewellery — such as forming, casting, piercing, enamelling, etching, and/or combining with other materials
3. Artistic expressions of utilitarian objects — such as candlesticks, servers, tableware
4. Use of metal for architectural accents — such as weather vanes, door knockers, decorative lamps.

C. Fiber and Fabrics

Fibers — yarns, reeds, grasses

1. Study of contemporary weaving

2. Experimentation with looms — inkle, waffle, harness (table or floor)
3. Knowledge of and experience with traditional threading and weaving techniques
4. Ability to create patterns
5. Experimentation — yardage, wall hangings, dividers.

Fabric Decoration — cottons, burlap, net

1. Study of contemporary work in stitchery, dyeing, and printing
2. Batik — study of traditional methods and experimentation with contemporary approaches
3. Experimentation with natural materials for creating dyes
4. Exploration and experimentation to decorate cloth for yardage, wall hangings, banners.

D. Students Should Present on Completion of Course:

1. Portfolio in two parts:
 - a. work completed in class
 - b. work done independently
2. Sketchbooks with notations
3. Design project — illustrated development of some aspect of design of a craft project
4. Independent depth study and report of one aspect of a craft.

NOTE:

Other Materials — The above listing does not exclude the use of other materials that are now on the market or may appear in the future. Imaginative use of found and new materials, as they apply to the craft field is encouraged. In some situations teachers or students may find locally available materials that may be incorporated into the program.

BASIC LIST OF REFERENCE BOOKS FOR ART CLASSROOM (Canadian distributor, where applicable, is shown in brackets)

Design and Composition:

Bevlin. *Design Through Discovery*. Holt Rinehart, 1963.
Looking and Seeing. 4 books plus guide. Ginn and Co., 1964.

History of Art:

Brieger et al. *Art and Man*. 3 Vol. Holt Rinehart, 1964.
 Janson. *History of Art*. Abrams (Prentice - Hall of Canada), 1963.

Drawing:

Rottger. *Creative Drawing: Point and Line*. Van Nostrand Reinhold, 1964.

Painting:

Sorgman. *Brush and Palette*. Van Nostrand. Reinhold, 1965.

Printmaking:

Andrews. *Creative Printmaking*. Prentice-Hall, 1964.

Sculpture:

Johnson. *Sculpture — Basic Methods and Materials*. McKay (Musson Book Co.), 1960.

Design Crafts:

- Moseley et al. *Crafts Design*. Wadsworth, 1962.
Rottger. *Creative Clay Crafts*. Copp Clark, 1963.

Design in Commerce and Industry:

- Faulkner. *Art Today*. Fourth Edition. Holt, Rinehart & Winston, 1962.

Additional References for Senior Art Classes:

In addition to the basic reference books for art classrooms the following books should be added for senior courses:

Mendelowitz. *Drawing*. Holt Rinehart, 1965.

*Ocvirk, Bone, Stinson and Wigg. *Art Fundamentals* (Theory and Practice).
Second edition. William Brown (Burns & McEachern), 1968.

Peterdi. *Printing Methods Old and New*. Macmillan, 1959.

*Schinneller. *Art: Search and Self Discovery*. Second edition. International
Textbook (Copp Clark), 1968.

Slivka, Rose et al. *The Crafts of the Modern World*. Horizon Press (Smithers
& Bonelie), 1968.

Struppeck. *The Creation of Sculpture*. Holt, Rinehart & Winston, 1952.

NOTE:

- Reference books for each senior high school art room, as listed above, would cost approximately \$75.00 per set. The same library would be basic for other high school art courses.
- Newer books may be substituted for the above as better material becomes available in the different areas.
- Paperbacks and art periodicals should be added to this basic library.

*These books are recommended for primary pupil references.

THE BUSINESS EDUCATION PROGRAM

Introduction

The curriculum for business education has been developed to serve all students in Alberta's secondary schools. Its flexibility permits the selection of one or more courses to complement a program, or the selection of a group of courses to comprise a major area of study. The purpose is to contribute to the general education and to the vocational preparation of high school students.

Philosophy of Business Education

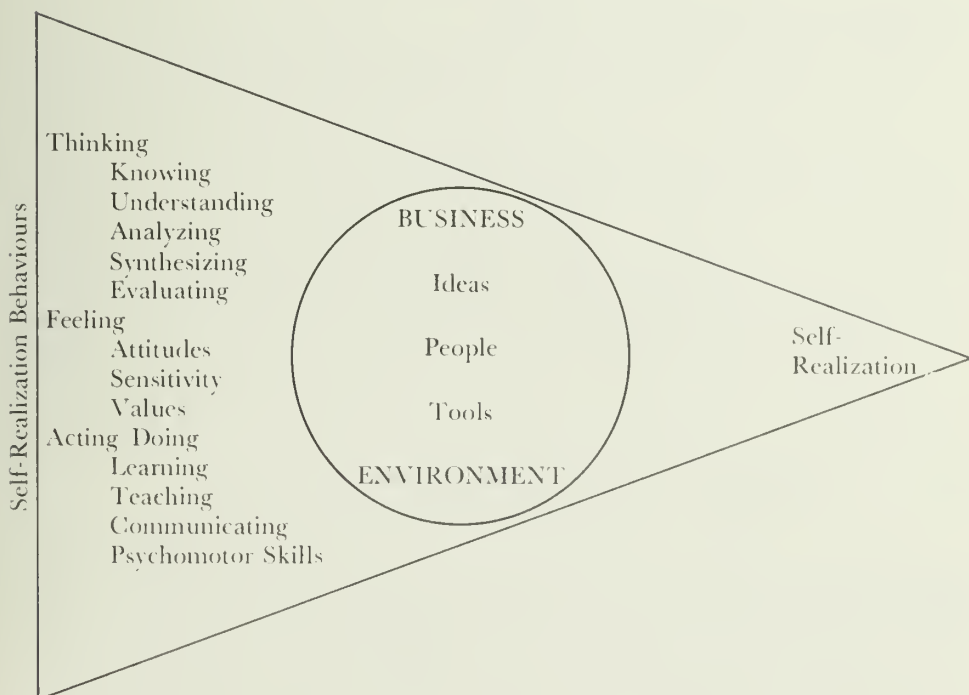
The business education curriculum for the Alberta secondary schools emphasizes two major tenets:

1. That the development of the individual's potentiality in the areas of thinking, acting and feeling is central to learning and instruction.
2. That individuals discover themselves and realize their potentialities by interacting with ideas, objects and people.

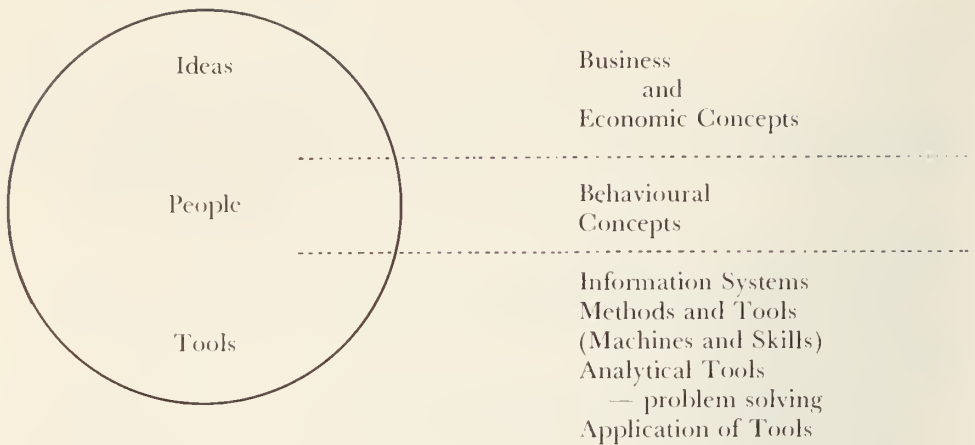
Obviously, the world of business is the proper focus for the interactive experiences of business students; and the ideas, objects and people are appropriate areas for ordering these experiences. If strategically planned, this three-fold order, comprising a study of business, can contribute to the development of the student's thinking, acting and feeling capabilities.

The following model illustrates the concept of the development of the individual's potential through a study of business:

Conceptual Model



Farmer Model¹



The instructional emphases in business education should be on concept development and modes of enquiry which will enable students to develop approaches and thinking skills which have long-range significance and lasting utility. Information processing rather than information dispensing should be a major goal of instruction.

Although the content of the various business education courses is carefully delineated, it is not meant to be prescriptive. Student interest, ability, maturity should be considered as well as the current significance of the topic and its potential for developing modes of thinking, feeling and acting.

Objectives of the Alberta Business Education Program

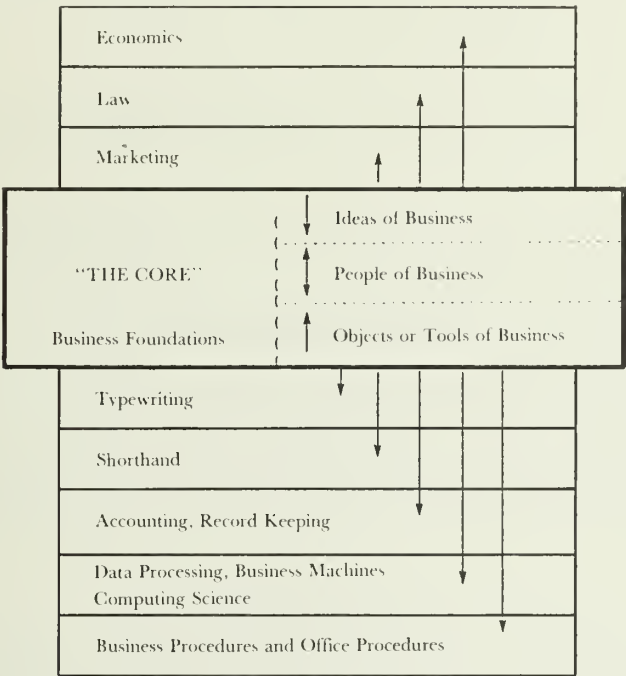
1. To provide a meaningful study of the business environment including the ideas, people, and objects or tools of business.
2. To provide for the development and acquisition of business knowledge and skills which will be most useful and durable in a rapidly changing society.
3. To provide an opportunity for students to elect and pursue individual interests and specialization in the study of the business environment.
4. To provide for individual development in the behaviours of thinking, acting and feeling.
5. To develop the thinking strategies and problem-solving abilities of students.
6. To provide an opportunity for students to relate and apply learnings in business education and other areas of study.
7. To expose students to the vast laboratory of business for the purpose of acquiring information, gaining experience and testing ideas and hypotheses.

Blueprint of the Business Education Program

From the preceding conceptual model and objectives, a blueprint for the business education program was developed. It shows the relationship of the various subjects. Business Foundations is the core of the program, the central strand which

¹ G.M. Farmer, "Business Education in Canada: Critical Problems and Exciting Prospects" (a paper presented to the Second Canadian Conference on Business Education in the Secondary School, Niagara Falls, Ontario, April, 1969).

is designed to illuminate, support and strengthen a student's performance in all business studies. As such, Business Foundations serves as a basic frame of reference to guide and enrich the learnings in all business courses including the skill subjects. Some subjects emphasize the ideas of business; others emphasize the objects or tools of business. People in business is the unifying aspect in all subjects relating the ideas with the objects and tools of business.



Guidelines for Program Planning and Student Counselling

Students may elect a limited or a comprehensive program of business education courses. Accordingly, some may choose a single subject (e.g., Typewriting 10), while others may select an area of concentration (e.g., Accounting 10, 20 and 30), or a group of related subjects (e.g., shorthand, typewriting, office procedures).

Some students may register in core courses only — Business Foundations 10 and/or 30 — while others may supplement this basic understanding of the business environment with other courses. If they are interested in particular skills or tools, they may register in selected courses such as typewriting, accounting, shorthand, data processing, computing science, business machines, business and office procedures. If they are interested in pursuing specific ideas in depth they may register in one or more of economics, law and marketing. Thus students have an opportunity to study the business environment, to develop specific skills, and to select areas for further concentration.

The flexibility of the program allows students to plan a combination of subjects that would: (a) provide general business education and personal use skills; (b) prepare for job entry upon completion of high school and for future advancement in business; (c) provide background for specialization at a post-secondary school; (d) enrich and complement other high school programs.

Business education teachers should assist as much as possible in planning the business education program for the school. The expressed interests of students, the various combinations of related subjects, the desirable prerequisites, the instructional facilities, the preparation and competence of available staff and the school enrolment are important factors to consider when planning the curriculum for a school.

ACCOUNTING 10

Primary References

Boynton, et. al. *20th Century Bookkeeping and Accounting*. Twenty-third edition. Gage Educational Publishing, 1969. Introductory Course (B85C).

or

Syme, G. *Accounting I*. Prentice-Hall of Canada Limited.

or

Kaluza, H. J. *Elements of Accounting*. McGraw-Hill Ryerson, 1969. (92455).

Objectives

1. To emphasize the importance of maintaining adequate accounting records in business and in personal affairs.
2. To provide a basic training in accounting for a small business and for personal use. These include cash control and payroll.
3. To provide the foundation for more advanced training in accounting.
4. To develop traits of neatness, accuracy and the ability to interpret and analyze accounting records of a small business.
5. To introduce common business terms and accounting procedures in realistic settings.

Scope

Recommended Texts

| Course Content | Gage | Prentice-Hall | McGraw-Hill |
|-----------------------|--|---|--|
| 1. Small Business | Chapters 1-11 (Chapter 9 optional) | Chapter 1-6 | Chapters 1-6 |
| 2. Banking Activities | Chapter 17 and pages 410-414 (Petty cash) | Part Ch. 10 (Petty cash) and Chapter 11 | Chapter 7 |
| 3. Payroll | Chapter 25 | Chapter 13 Part dealing with recording payroll | Chapter 10 — topics 1,2,3, and topic 4 to the top of page 227 |

Workbooks

Workbook 10 for *20th Century Bookkeeping and Accounting* (Acct. 10).

Working Papers for *Accounting I*, Set I — Chapters 1-10, Set II, Chapters 11-15.

Working Papers I for *Elements of Accounting* (Chapters 1-7).

Practice Materials

(One or more may be selected)

1. *Allen Electronic Company*, Canadian Edition, 1974.
2. *Family Finance Simulation*, B936, Gage.
3. *Professions Accounting*, B937, Gage.
4. *Service Station Set*, A215, Gage.

ACCOUNTING 20

Primary References

Boynton, et al. *20th Century Bookkeeping and Accounting*. Twenty-third edition. Gage Educational Publishing, 1969. Introductory Course (B85C).

or

Syme, G. *Accounting I*. Prentice Hall of Canada Limited.

or

Kaluza, H. J. *Elements of Accounting*. McGraw-Hill Ryerson, 1969. (92455).

Objectives

1. To emphasize the importance of maintaining adequate records in a merchandising business.
2. To provide a basic training in typical accounting duties encountered in a merchandising business.
3. To provide a broader foundation for more advanced training in accountancy.
4. To develop an understanding of the preparation of financial statements and their significance in the accounting cycle.
5. To emphasize the function of accounting records as an aid to management and the need for intelligent interpretation of accounting records.

Scope

Recommended Texts

| Course Content | Gage | Prentice-Hall | McGraw-Hill |
|----------------------------|------------------------|--|---------------------|
| 1. Merchandising Business | Chapters 12, 13,14,15 | Chapters 7,8, 9. Balance of Chapters 10,12 | Chapters 8,9,11, 12 |
| 2. Synoptic Journal | Chapter 23 to page 409 | Chapter 8 | None |
| 3. Bad Debts, Depreciation | None | Chapter 14 | Chapter 13 |
| 4. Payroll | Chapter 26 | Balance of Chapter 13 | Chapter 10, Topic 4 |
| 5. Work Sheet Adjustments | Chapters 18, 19,20 | Chapters 14,15 | Chapters 13,14 |

Workbooks

Workbook 20 for *20th Century Bookkeeping and Accounting* (Acct. 20).

Working Papers for *Accounting I*, Set I. Chapters 1-10, Set II, Chapters 11-15.

Working Papers II for *Elements of Accounting* (Chapters 8-14).

Practice Material

(One of the following may be selected)

Judd Paint Company. Canadian Edition. McGraw-Hill, 1974.

or

Spencer Athletic Goods, Parts 1 and 2. (B813C). Gage Educational Publishing.

It is recommended that business papers rather than textbook narratives for transactions be used.

ACCOUNTING 30

Primary References

Boynton et al. *20th Century Bookkeeping and Accounting*. Advanced Course. Twenty-third edition (Canadian edition). Gage Educational Publishing, 1970. (B88C).

Kaluza, et al. *Elements of Accounting: A Systems Approach*. Advanced Course, McGraw-Hill Ryerson Ltd. 1971.

Optional References

Kaluza, H. J. *Elements of Accounting*. Canadian edition. McGraw-Hill Ryerson, 1969. (92455).

Syme, G. *Accounting 1*. Canadian edition. Prentice-Hall of Canada Limited, 1970.

Finney and Miller. *Principles of Accounting* (Introductory). Canadian edition. Prentice-Hall of Canada Limited.

Accounting Basics Series (Canadian edition)

— *Introduction* by R. E. Beam and C. Lund.

— *Special Journals and Related Systems* by R.E. Beam and C. Lund.

This series published by Prentice-Hall of Canada Limited.

Objectives

1. To emphasize the importance of maintaining adequate accounting records in all types of business.
2. To provide a basic understanding of accounting procedures applicable to single proprietorships, partnerships, and corporations.
3. To provide a foundation for post-secondary education and/or professional accounting.
4. To develop an understanding and use of financial records.

Scope

| Course Content | Gage | McGraw-Hill Ryerson |
|--|-------------------|---------------------|
| 1. Nature and Purposes of Accounting a. Accounting Principles | Chapters 1 & 2 | Chapters 1,2 & 3 |
| 2. General Accounting Concepts a. Voucher System b. Inventory Control c. Notes, Interest, Drafts d. Departmental, Branch, Subsidiary Accounting e. Payroll f. Asset Valuation g. Accruals and Deferrals | Chapters 3,4,7-14 | Chapters 4,5,11 |
| 3. Budgeting a. Types of Budgets and Their Uses b. Budgetary Reports | Chapter 5 | Chapter 7 |
| 4. Forms of Business Organization a. Single Proprietorship b. Partnership c. Corporation | Chapters 15,16,17 | Chapter 8,9 |

| Course Content | | Gage | McGraw-Hill Ryerson |
|------------------------|--|---------------------|------------------------|
| 5. | Financial Statement Analysis <ul style="list-style-type: none"> a. Income Statement b. Balance Sheet c. Comparative Statements d. Ratio and Graphic Analysis | Chapters 17 & 18 | Chapter 12,13 |
| 6. | Cost Accounting <ul style="list-style-type: none"> a. Service Department b. Manufacturing Operations c. Cost Accounting Statements | Chapters 21,22,23 | Chapter 6 |
| Optional Topics | | | |
| 7. | Taxation <ul style="list-style-type: none"> a. Sales Tax b. Income Taxes — personal and corporate | Chapter 6 | Chapter 10 |
| 8. | Financial Statements <ul style="list-style-type: none"> a. Source and Application of Funds b. Analysis for Management c. Analysis for Investment | | Chapter 13 |
| 9. | Auditing <ul style="list-style-type: none"> a. Major Functions b. Basic Procedures | | Chapter 1 & 12 |
| 10. | Accounting Techniques and Methods <ul style="list-style-type: none"> a. Peg Board b. Machine Accounting c. Punched Card d. Computer | Chapters 19 & 20 | Chapters 2 & 3 |
| 11. | Special Sales Accounting <ul style="list-style-type: none"> a. Installment Sales b. C.O.D. Sales c. Consignment Sales | Chapters 24,25 & 26 | |

Workbooks

Working papers for *20th Century Bookkeeping and Accounting* (Advanced Course)

Chapters 1-7 (B804C), Chapters 8-14 (B805C), Chapters 15-26 (B806C).

Working Papers for *Elements of Accounting: A Systems Approach*. Advanced Course)

Workbook I Chapters 1-7, Workbook II Chapters 8-14.

Practice Sets

(One or more may be selected)

Practice Set 1 — Reed Auto Supplies.

Practice Set 2 — Norton and Page Ltd.

Practice Set 3 — Stanley Manufacturing Company Ltd.

These Practice Sets published by Gage Educational Publishing Ltd.

BUSINESS FOUNDATIONS 10 AND 30

Objectives

1. To provide an understanding of the Canadian business environment, that is, the ideas of business, the people of business and the objects or tools of business.
2. To develop recognition and an appreciation of the interrelationships and interdependence of all aspects of business.
3. To foster an awareness and appreciation of the human factors in business.
4. To provide for individual development in the behaviours of thinking, acting and feeling through the study of the business environment.

Scope

Business Foundations 10 (3 or 5 credits)

Study the four major concepts in depth and breadth with emphasis on “Purpose of Business in the Canadian Economy” and “Consumption”. The following list and bar graph indicate a division of the generalizations which have been developed for each subconcept in the Curriculum Guide for Business Foundations 10 and 30.

| | |
|---------------|--|
| Five-credits | detailed coverage of the generalizations |
| Three-credits | coverage of the generalizations in less detail |

Business Foundations 30 (5 credits)

Study the four major concepts in depth and breadth with emphasis on “People of Business” and “Production”. The following list and bar graph indicate a division of the generalizations which have been developed for each subconcept in the Curriculum Guide for Business Foundations 10 and 30.

| Concepts and Subconcepts | Generalizations | |
|--|-------------------------|-------------------------|
| | Business Foundations 10 | Business Foundations 30 |
| I. Purpose of Business in the Canadian Economy | | |
| Subconcept A | 1 to 6 | |
| Subconcept B | 1 to 5 | 6 |
| Subconcept C | 1 to 6 | 7 and 8 |
| II. Production | | |
| Subconcept A | 1,2 and 5 | 3,4 and 6 |
| Subconcept B | 1 to 3 | 1 to 5 |
| Subconcept C | 1 to 7 | 8 and 9 |
| Subconcept D | 1,2,4 and 6 | 3,5,7 |
| Subconcept E | 1 | 1 to 4 |
| Subconcept F | — | 1 and 2 |
| Subconcept G | 1 to 11 | 9 to 15 |
| III. Consumption | | |
| Subconcept A | 1 to 5 | |
| Subconcept B | 1 to 3 | |
| Subconcept C | 1 and 3 | 2,4,5 and 6 |
| Subconcept D | 1,4 and 5 | 2,3 and 6 |
| IV. People of Business | | |
| Subconcept A | 1 to 5 | |
| Subconcept B | 1 to 5 | 1 to 12 |

Guide to Content Emphasis Between Four Major Concepts and the Two-Level Program

| Purpose of Business in Canadian Economy | Production | Consumption | People of Business |
|--|------------|-------------|-----------------------|
| XXXXXX | XXXXXX | XXXXXX | XXXXXX |
| XXXXXX | XXXXXX | XXXXXX | XXXXXX |
| XXXXXX | XXXXXX | XXXXXX | XXXXXX |
| XXXXXX | XXXXXX | XXXXXX | XXXXXX |
| XXXXXX | XXXXXX | XXXXXX | XXXXXX |
| XXXXXX | +++++ | XXXXXX | XXXXXX |
| XXXXXX | +++++ | XXXXXX | +++++ |
| XXXXXX | +++++ | XXXXXX | +++++ |
| XXXXXX | +++++ | +++++ | +++++ |
| XXXXXX | +++++ | +++++ | +++++ |
| +++++ | +++++ | +++++ | +++++ |
| +++++ | +++++ | +++++ | +++++ |
| +++++ | +++++ | +++++ | +++++ |
| +++++ | +++++ | +++++ | +++++ |
| +++++ | +++++ | +++++ | +++++ |

XXXXXX Business Foundations 10

+++++ Business Foundations 30

Primary References

It is suggested that textbooks listed below constitute the basic reference materials. Six copies of each title should be sufficient for an average class size.

Archer. *An Introduction To Canadian Business*. McGraw-Hill Ryerson Ltd., Scarborough, Ontario, 1967.

Bruce, Heywood & Abercrombie. *Business Fundamentals*. Second Edition. McGraw Hill Ryerson Ltd., Scarborough, Ontario.

Herbert. *Introduction To Management*. Sir Isaac Pitman (Canada) Ltd., Toronto, Ontario, 1966.

Millard & Mitchell. *Economics: A Search For Patterns*. Gage Educational Publishing Ltd., Agincourt, Ontario, 1971.

Treliving & Murphy. *General Business and Consumer Fundamentals*. McGraw-Hill Ryerson Ltd., Scarborough, Ontario, 1970.

Course Content

CONCEPT I. PURPOSE OF BUSINESS IN THE CANADIAN ECONOMY

Subconcepts:

- A. Wants and Needs
- B. Demand and Supply
- C. The Canadian Economy

CONCEPT II. PRODUCTION

Subconcepts:

- A. Factors of Production
 - (a) Natural Resources

- (b) Human Resources
- (c) Capital Resources
- (d) Entrepreneurship
- B. Supply
- C. Ownership
- D. Organization
 - (a) Manufacturing
 - (b) Marketing
 - (c) Financing
- E. Management
 - (a) Planning
 - (b) Organizing
 - (c) Staffing
 - (d) Directing
 - (e) Coordinating
 - (f) Controlling
- F. Specialization
- G. Human Resources
 - (a) Individual as a Producer
 - (b) Occupations in Production
 - (c) Welfare of People in Production

CONCEPT III.

CONSUMPTION

Subconcepts:

- A. Consumer
- B. Demand
- C. Credit
- D. Welfare of the Consumer

CONCEPT IV.

PEOPLE OF BUSINESS

Subconcepts:

- A. Importance of People in Business
- B. Behaviour of People in Business
 - (a) Behaviour of Individuals
 - (b) Behaviour of Groups
 - (c) Organizational Behaviour
 - (d) Leadership, Management Behaviour
 - (e) Problems of People in Business

BUSINESS MACHINES 30

Primary References

Appropriate references are to be chosen from the following:

Dool. *Business Machine Operations and Applications*. McGraw-Hill Ryerson Limited, Scarborough, Ontario, 1973.

or

Walker et al. *How To Use Adding and Calculating Machines*. (3rd Edition). McGraw-Hill Ryerson Limited, Scarborough, Ontario, 1967.

or

Agnew et al. *Office Machines Course*. (3rd Edition). Gage Educational Publishing Co., Toronto, 1962.

or

English et al. *Machine Calculations*. Pitman Publishing (Copp Clark in Canada).

Objectives

1. To familiarize the student with business machines — their operating features, advantages, and their practical uses.
2. To make the student aware of the important role that machines play in the processing of data in the business world.
3. To provide a vehicle for developing further the thought processes of problem analysis and problem-solving.
4. To help the student achieve competence in the operation of business machines in practical situations.
5. To enable students to secure an understanding of the values, attitudes, and ethics needed for success in business.

Scope

Coverage of the course outline with emphasis on calculating machines.

Course Content

Specific Objectives

The student should be able to:

1. Demonstrate proficiency in the touch operation of ten-key calculators.
2. Add columns of figures at a speed of not less than 80 strokes per minute.
3. Add, subtract, multiply and divide using the prescribed method for the machine being used.
4. Use the techniques learned to complete accurately, realistic business problems.
5. Demonstrate the attitudes and work habits required in business.

DATA PROCESSING PROGRAM

Introduction

The Data Processing program comprises two courses of instruction — Data Processing 20 and Computing Science 30. Data Processing 20 can be taught for three or five credits and Computing Science 30 for five credits. Data Processing 20 is a general course of interest to all students in order to develop an appreciation of the significance of data processing in every day life and its offering is in no way dependent upon the availability of equipment. In Computing Science 30, emphasis is given to the programming of business, science and mathematics applications and to systems design. The offering of this course in Alberta schools is dependent upon the availability of computer time and equipment to prepare input data. Furthermore, the type of computer language used is dependent upon the capabilities of computers available to individual schools. Data Processing 20 is not necessarily a prerequisite to Computing Science 30.

Objectives

1. To promote an understanding of the fundamental principles in processing data by manual, mechanical and electronic means.
2. To provide a vehicle for developing further the thought processes of analysis, synthesis and problem-solving.
3. To present basic principles of logic which have eventual application in many decision-making situations.

4. To develop knowledge and skills in the general field of computing science.
5. To provide opportunities for students to develop effective interaction and the interdependence of man and machine.
6. To provide an understanding and appreciation of the interaction and the interdependence of man and machine.
7. To encourage student initiative, freedom of thought, and adaptability as preparation for future changes and developments in data processing.
8. To provide an introduction to data processing equipment and techniques as a broad base upon which the student may evaluate a possible career in this field.

DATA PROCESSING 20

Primary References

Wanous, Wanous, Wagner. *Fundamentals of Data Processing*. Gage Educational Publishing Limited, 1971.

or

Crawford. *Processing Information. The Computer in Perspective*. McGraw-Hill Ryerson Limited, 1973.

Support Materials

Teacher's Manual and Project Kit to accompany the above text.

Scope

Five-credits: Detailed coverage of the course outline.

Three credits: Coverage of the course outline in less detail.

Course Outline

- | | |
|---------------------|--|
| Generalization I: | Needs for Data Processing exist in various situations: CONCEPTS & SUB-CONCEPTS A. Data Processing Business Scientific Government |
| Generalization II: | Within Data Processing there are a series of operations: CONCEPTS & SUB-CONCEPTS A. Data Processing functions (operations) Recording Classifying Sorting Calculating Communicating Storing |
| Generalization III: | Data Processing is carried out in a variety of methods: CONCEPTS & SUB-CONCEPTS A. Methods of Data Processing Manual Electromechanical Computer |

Generalization IV:

A basic medium of information processing is the punch card.

CONCEPTS & SUB-CONCEPTS

- A. Physical Characteristics of a card
 - Dimensions
 - Edges
 - Rows
 - Columns
 - Corner Cuts
 - Color
- B. Representation of Data
 - Hollerith Code
- C. Card Planning and Lay-out
 - Field and Subfields
 - Principles of Card Design
- D. Card Application

Generalization V:

There are many processes and machines for handling punched card information:

CONCEPTS & SUB-CONCEPTS

- A. Recording and verifying
 - Mark sensing
 - Port-a-punch
 - Keypunch
- B. Sorting and Collating
 - Numeric
 - Alphabetic
 - Report Sorting
 - Sorting for selection
 - Merging
 - Matching
- C. Calculating
- D. Reporting

Generalization VI:

Any computer system is made-up of a number of basic components.

CONCEPTS & SUB-CONCEPTS

- A. Computer Types
 - Digital
 - Analog
 - Hybrid
- B. Input
 - Direct entry into storage
 - Card reader
 - Magnetic tape devices
 - Paper tape devices
 - Optical character readers
 - Magnetic ink readers
 - Disks

- C. Central Processing Unit
 - Memory or Storage
 - Arithmetic and logic
 - Control
- D. Output
 - Printers
 - Card Punch
 - Paper tape punch
 - Magnetic tape units
 - Magnetic disk
 - Graphic plotters
 - Visual display devices
 - Audio response units

Generalization VII: Problem solving by a computer consists of a number of tasks.

CONCEPTS & SUB CONCEPTS

- A. Programming
 - Problem definition
 - Flowcharting
 - Coding of Instructions
 - Testing of
 - Documentation

N.B. Depending upon the time and resources available to a teacher, a decision should be made regarding the depth to which the above topic may be explored.

Generalization VIII: The application of the computer in our society is varied.

CONCEPTS & SUB-CONCEPTS

- A. Business
- B. Government
- C. Science

Generalization IX: Information processing involves an interdependence of man and machine.

CONCEPTS & SUB CONCEPTS

- A. Systems and Procedures

COMPUTING SCIENCE 30 (5 credits)

Introduction

The teaching of Computing Science 30 is dependent upon the availability of computer time and equipment to prepare input (programs and data). Before the decision is reached to offer this course, application should be made to the Curriculum Branch, Department of Education, indicating that:

1. A qualified teacher is on staff to teach the course.
2. Equipment needed to prepare student programs and data is available in the school, or has been approved for a new school by the School Building Board, Department of Education.

3. Computer time is available. The Curriculum Branch, Department of Education, will make arrangements for free computer time at the Northern and Southern Alberta Institutes of Technology, or local authorities may make arrangements with other data centres.

Primary References

Feingold. *Introduction To Data Processing*. Wm. C. Brown Co. (Burns and MacEachern Ltd., Don Mills, Ontario), 1971.

Support Materials

Teacher's Manual and Student's Workbook to accompany the above text.
or

Awad. *Business Data Processing*. Third edition. Prentice Hall of Canada, Scarborough, Ontario, 1971.

Support Materials

Teacher's Manual and Student's Workbook to accompany the above text.

Scope

Detailed coverage of the course outline.

Course Outline

| | |
|---------------------|--|
| Generalization I: | There are many basic data processing principles: CONCEPTS & SUB-CONCEPTS Data Processing Problem definition Logical sequencing of events |
| Generalization II: | Any computer system is made up of a number of basic elements: CONCEPTS & SUB-CONCEPTS A. Input Unit B. Output Unit C. Central Processing Unit Memory Arithmetic and Logic Control |
| Generalization III: | A computer system may incorporate many and varied hardware devices. CONCEPTS & SUB-CONCEPTS A. Input Output Card Card Punch Magnetic tape unit Key to tape unit Magnetic disk Magnetic drum Direct access terminal Paper tape reader Paper tape punch Line printer |

- Magnetic ink character reader
- Optical character reader
- Visual display terminal
- Graphic plotter
- Audio response unit

- B. Primary memory
 - Magnetic Core
 - Thin film
 - Rod

- C. Auxiliary Memory
 - Magnetic disk
 - Magnetic drum
 - Data cell
 - Magnetic tape

Generalization IV: The functioning of a computer system is dependent upon a number of software factors:

CONCEPTS & SUB-CONCEPTS

- A. Machine language
- B. Compiler or assembler
- C. User program language
- D. Operating system commands

Generalization V: Computer users must provide a system with a program in order to solve a problem.

CONCEPTS & SUB-CONCEPTS

- A. Basic computer instructions
 - Input/output
 - Arithmetic
 - Decisions
 - Looping
 - Lists and arrays
- B. Programming techniques
 - Data formatting
 - Flowcharting
 - Coding in Programming language
 - Documentation
- C. Systems and Procedures

Generalization VI: The field of computing technology is rapidly expanding and developing in our society.

CONCEPTS & SUB-CONCEPTS

- A. Impact of change in the computing field
- B. Impact of change on society

Objectives

1. To provide the student with a knowledge of the fundamental principle of law as it applies to common business transactions and to personal affairs.
2. To assist the student in knowing his responsibilities and rights and the relationship of these to the responsibilities and rights of other.
3. To develop an understanding of the functions and purposes of law in our society, including the development of our legal system and the courts that administer justice.
4. To assist the student in developing tolerance and maturity in the assessment of our legal system.
5. To provide opportunities for students to develop logical thinking and to use good judgement in applying legal principles to business and personal problems.

Primary Reference

Jennings, Zuber. *Canadian Law*. Second edition. McGraw-Hill Ryerson, 1972.

Support Materials

Teacher's Manual to accompany the primary reference (*Canadian Law*, second edition).

Workbook to accompany the primary reference (*Canadian Law*, second edition).

Scope

Five-Credits — Coverage of all topics with emphasis on fundamental principles. However, some of the topics may be done more intensively than others.

Three-Credits — Coverage of the course outline in less detail.

Course Outline

1. Canadian Legal System
 - History of Law
 - Criminal and Civil Law
 - Law of Torts
 - Civil Rights
 - Citizenship
2. Family Law
 - Parents' and Children's Responsibilities and Rights
 - Marriage and Divorce
 - Welfare Legislation
 - Wills, Trusts, and Intestacy
 - Life Insurance
3. Commercial Law
 - Section A — Agreements
 - Contracts
 - Principal and Agent
 - Section B — Buying and Selling Goods
 - Conditional Sales
 - Bill of Sale
 - Mortgages

Law of Bailments
Banks and Bills of Exchange
Consumer Protection Legislation

4. Real and Personal Property
Assessment and Taxation
Real Property — Buying, Building, Renting
Sales of Goods and Personal Property
Securities Legislation
Bailment and Other Rights
Ownership of Personal Property
Torts and Negligence Legislation
Insurance of Property

MARKETING PROGRAM

Individuals in our society are surrounded by the most complicated market place that man has ever created.

Marketing is all around us. We are surrounded by facilities that carry **products** — goods grown, extracted or manufactured and available for sale. We are also surrounded by establishments that offer **services** — benefits or satisfactions that improve the personal appearance, health, comfort, or peace of mind of consumers. Getting goods (and the products needed in making services available) grown, extracted or manufactured, to the consumer involves many activities such as selling, advertising, research, transportation, storage, and product planning. These activities make up the world of marketing — a world of people, products, action, and ideas.

The marketing program comprises two five-credit courses of instruction, Marketing 20 and Marketing 30. In Marketing 20 emphasis is on the study of the Canadian market system while in Marketing 30 students are provided with opportunities to study marketing personnel functions or activities within the various Canadian industries. The operation of a merchandising laboratory is an essential component in the teaching of both of these courses. Marketing 20 is a prerequisite to Marketing 30.

General Objectives of Marketing

1. To acquaint students with the significance of marketing in Canadian business, and with the occupational opportunities in marketing.
2. To provide a background from which the students can analyze the interaction between, and the inter-dependence of the various activities in marketing.
3. To assist the students in developing inter-personal attitudes and abilities which are necessary in marketing.
4. To provide opportunities for students to apply marketing principles and skills, and to enable them to evaluate and analyze their performance in relation to the expectations of the business community.
5. To encourage students to become sensitive to the need for adaptability required in order to meet the ever-changing demands of marketing resulting from the constant social, economic, and technological changes in society.

MARKETING 20

Primary References

R. Picard. *Marketing, a Canadian Profile*. Pitman Publishing (Copp Clark in Canada).

or

P. M. Banting. *Marketing in Canada*. McGraw-Hill Ryerson Limited, 1973.

Scope

Detailed coverage of the course outline.

Course Outline

CONCEPT I.

MARKETING IN CANADA (General Overview)

Subconcepts:

- A. Role of Marketing in Canada
- B. Magnitude of Marketing in Canada
- C. Marketing Mix
 - Product — Service
 - Price — Value
 - Promotions
 - Place — Transportation · Storage
 - Personnel
- D. Other Marketing Mix Elements
 - Standardization — Containers
 - Bolts
 - Shipping Procedures
 - Automatic Selling
- E. Government-Marketing Relationships

CONCEPT II.

PRICE

Subconcepts:

- A. Components of Cost
 - Supplier's Invoice Price
 - Freight & Handling
 - Discounts
- B. Components of Markup
 - Expenses
 - Profit
 - Markdown
- C. Factors Influencing Markup
 - Perishability
 - Turnover
 - Workroom Costs
- D. The influence of the Marketplace
 - Supply
 - Demand
 - Competition
- E. Future Trends

CONCEPT III.

PRODUCT

Subconcepts:

- A. Market Demand
- B. Market Research
- C. Quality and Quantity

- D. Branding
- E. Packaging and Labelling
- F. Servicing and Warranty
- G. Product Classification
- H. Service as a Product
- I. Product Differentiation
 - Size Promotion
 - Model Service
 - Services Branding
 - Packaging Quantity
- J. Future Trends and Projection

CONCEPT IV.

PROMOTION

Subconcepts:

- A. The Responsibilities of Promotion
- B. Techniques and Tools of Promotion
- C. Evaluation of Promotion
- D. Future Trends

CONCEPT V.

PLACE

Subconcepts:

- A. Concentration of Population
- B. Concentration of Industry
- C. Socio-Economic and Ethnic Factors
- D. Middle-man Concept and Channels of Distribution
- E. Transportation
- F. Building Facilities
- G. Labor Force
- H. Services
- I. Future Trends and Projections

CONCEPT VI.

PERSONNEL IN MARKETING

Subconcepts:

- A. Communications
- B. Managerial Styles
 - Authoritarian
 - Democratic
 - Laissez-Faire
- C. Personnel Functions
 - Managing Renummerating
 - Education Training
 - Evaluating
- D. Labor Relations
- E. Public Relations
- F. Future Trends and Projections

MARKETING 30

In Marketing 30 emphasis is placed on the study of personnel functions noted above in the various business enterprises. The objective is to study all functions in one or two selected industries. However, an opportunity should be provided for students to study in depth one or more personnel functions in selected industries.

**PERSONNEL
FUNCTIONS**

INDUSTRIES

ADMINISTRATION
&
OFFICE SERVICES

PRODUCTION
Primary
Secondary

ACQUISITION

WHOLESALE

STORAGE

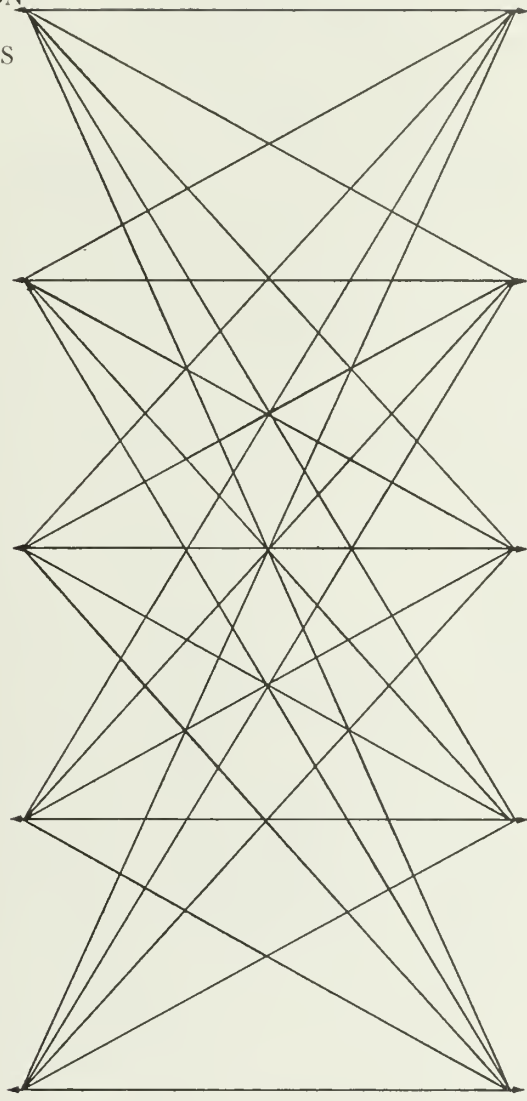
RETAILING

SELLING

SERVICE

PROMOTION

GOVERNMENT



Primary References

It is suggested that the following books constitute the basic reference materials for Marketing 30. For example, eight or ten copies of each title should be sufficient for an average class size.

Shilt, R. A. et al. *Business Principles and Management*. 6th edition. Gage Educational Publishing Limited, 1972.

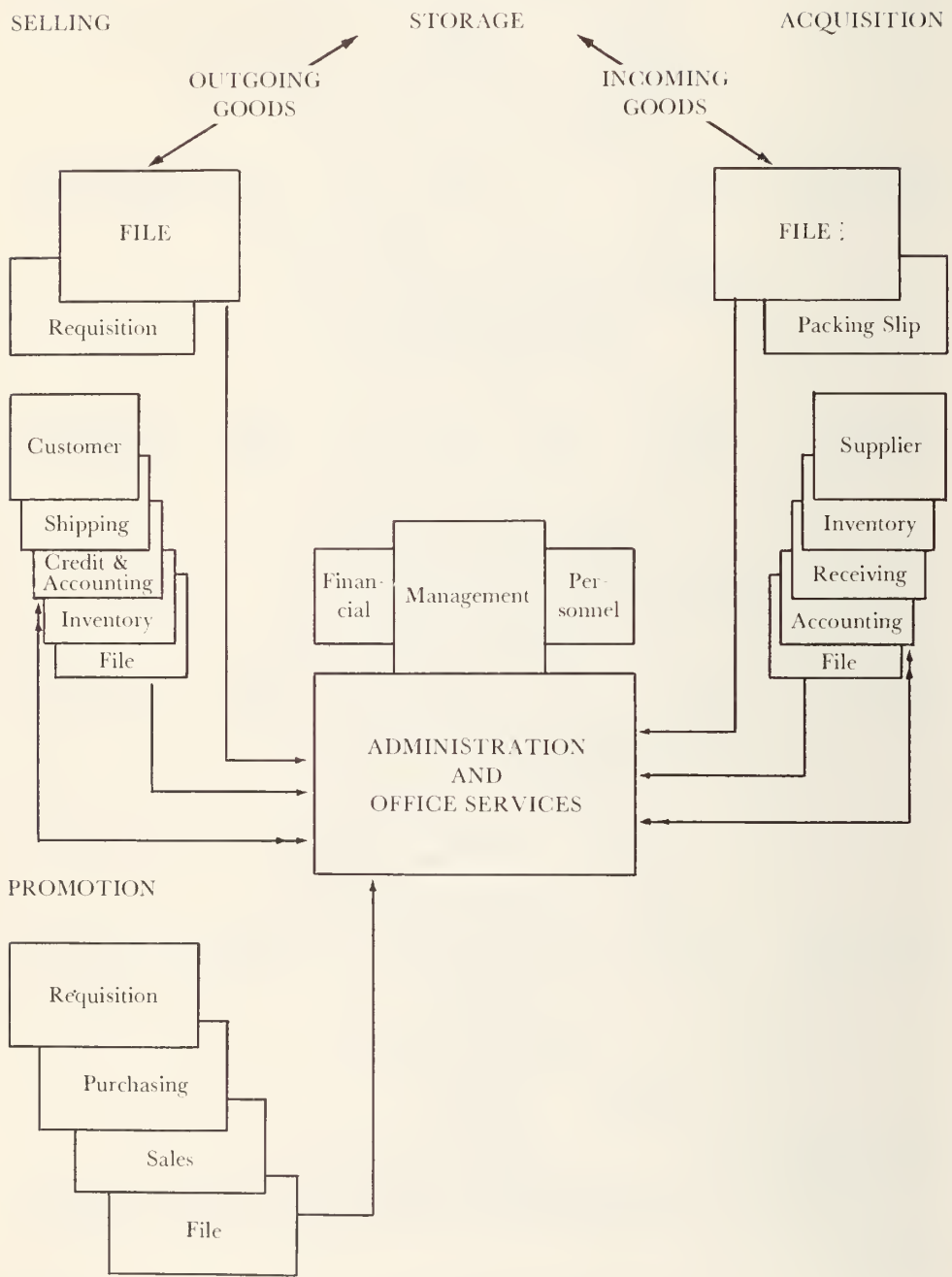
Oliver, R. E. *Advertising*. McGraw-Hill Series in Marketing. McGraw-Hill Ryerson Limited, 1969.

Ernest, J. W. and Ashmun, R. D. *Salesmanship Fundamentals*. 4th Edition. McGraw-Hill Ryerson Limited, 1973.

Scope

Detailed coverage of the course outline.

Inter-Relationships of
Personnel Functions



Course Outline

CONCEPT I.

ADMINISTRATION AND OFFICE SERVICES

Subconcepts:

A. The Entrepreneurial Process

- B. Forms of Ownership
 - Unincorporated
 - Incorporated
 - Public (Government)
- C. Management Functions
 - The Planning Function
 - The Organizing Function
 - The Leadership Function
 - The Controlling Function
- D. Management and Government
- E. Importance of Keeping Records
- F. Necessary Records
- G. Collecting & Recording Information (DATA)
- H. Processing Information
- I. Storing and Retrieving of Information
- J. Customer Service
- K. Mail Room
- L. Office Staff and Central Files
- M. Personnel, Financial, Management Departments

CONCEPT II.

ACQUISITION

Subconcepts:

- A. Supply Analysis
 - Quality
 - Location
 - Availability
 - Delivery
 - Price
- B. Demand Analysis
 - Prior Consumption
 - Competition
 - Former Pricing
 - Sales Projectors
- C. Ethics
- D. Forms and Procedures

CONCEPT III.

STORAGE

Subconcepts:

- A. Function of Storage
- B. Storage Facilities
 - Private Warehouses
 - Public Warehouses
 - General
 - Special
 - Bonded
 - Field
- C. Receiving of Goods
- D. Internal Routines and Control
- E. Forms and Procedures
- F. Internal Security
- G. Trends and Developments in Storage

CONCEPT IV.

SELLING

Subconcepts:

- A. Selling as a Skill

- B. Selling Process
- C. Differentiation of Skills required in Selling
- D. Steps in the Sale
 - The pre-approach
 - determining customer names
 - opening the sale
 - conducting the presentation
 - handling objections
 - closing
 - performing the mechanics of closing
 - taking leave of the customer
- E. Selling Places and Situations
- F. Characteristics of a Successful Salesman:
 - Physical Characteristics
 - Character Traits
 - Skills
- G. Opportunities in Selling

CONCEPT V.

PROMOTION

Subconcepts:

- A. Purpose of Promotion
- B. Budget
- C. Promotion on Basis of the Channels of Distribution
- D. Advertising
- E. Other Promotion Techniques
- F. Social and Economic Factors

PROCEDURES PROGRAM

The application of new and previously learned skills and knowledges in the procedures which are basic to business and office operation is embodied in two 5-credit courses — Business Procedures 20 and Office Procedures 30.

Business Procedures 20 has no prerequisite, however, this does not preclude individual schools from adopting local specifications. Office Procedures 30 requires typewriting. It is suggested that the minimum standing in the prerequisite, Typewriting 20, should be 50%. Most Office Procedures 30 students will be registered in Typewriting 30 concurrently. However, care should be taken not to schedule Office Procedures 30 prior to the completion of Typewriting 20.

The procedures that are common in the business activities of employees and employers in the areas of marketing, accounting or data processing, and other service businesses such as automotives, food preparation, beauty culture, etc., are included in Business Procedures 20.

The procedures commonly experienced by secretaries, stenographers, typists and other office clerks are included in the course Office Procedures 30.

A school may choose to offer the two courses sequentially as preparation for clerical office positions and may specify additional prerequisites. Each course may be offered to complement a designated program, to enrich other programs, or to satisfy student interests.

BUSINESS PROCEDURES 20

General Objectives

1. To foster the student's understanding and appreciation of the performance standards and qualifications for initial careers in business.
2. To further the student's awareness of personal and business behaviour that is most conducive to pleasant, rewarding relationships with fellow associates.
3. To acquaint the student with the opportunities for the diversity of business careers and to identify himself as a person in business.
4. To integrate new and previously learned basic skills and knowledge through the application of common business procedures.
5. To familiarize the students with the ancillary services that facilitate business procedures.
6. To supply the student with the opportunity to make use of his background of knowledge in order to make intelligent decisions in solving business problems.

Primary References

Reid. *Modern Office Procedures*. Book I. Pitman Publishing (Copp Clark in Canada).

or

Sparling. *Complete Course In Office Practice*. Fourth Edition. McGraw-Hill Ryerson Limited.

Practice Materials

Smith. *Canadian Filing Practice*. Pitman Publishing (Copp Clark in Canada).

or

Kahn, Stewart, Yerian. *Quick Filing Practice*. Canadian Edition. McGraw-Hill Ryerson Limited.

Scope

Concepts I, III, VII, IX and XIII; plus a **minimum of five** of the remaining ten concepts. Omit those concepts that are adequately covered in other courses in a particular school.

Course Content

Concepts and Subconcepts

I Business Careers

- Diversity
- Qualifications
- Performance Standards
- Opportunities and Rewards

II Postal Services

- Classes
- Other Services
- Mailing Procedures

III Telephone Services

- Kinds of Telephone Calls
- Types of Equipment
- Other Services
- Telephone Procedures

IV Other Communication Services

- Telecommunication Services
- Radio and T.V.
- Computers

V Banking

- Types of Accounts
- Banking Forms
- Endorsements
- Reconciliation
- Loans
- Other Services

VI Transportation and Shipping

- Kinds of Carriers
- Classifications
- Shipping Forms
- Shipping Procedures

VII Laws, Regulations and Agreements

- Foreign Trade and Custom Duties
 - Custom Duties
 - Export Procedures
 - Import Procedures
- Payroll Deductions
 - Unemployment Insurance
 - Canada Pension Plan
 - Income Tax
 - Alberta Health Care
 - Other Deductions

- Employee-Employer Relations
 - Contract Agreement
 - Workers' Compensation

VIII Business Organization

- Classifications by Activities
- Forms of Ownership
- Organizational Structure

IX Communication Skills

- Written
 - Reading
 - Writing
- Spoken
 - Listening
 - Writing

X Office Machines

- Adding and Calculating
- Operating Procedures
- Business Applications
- Other Machines

XI Duplicating and Copying

- Duplicating Processes
- Copying Processes
- Applications
- Procedures

XII Filing and Records Control

- Equipment
- Alphabetic Systems
- Procedures for Alphabetic Filing

XIII Interpersonal Relations

- Working with Others
- Meeting Customers and Clients
- Participating in and Conducting Meetings

XIV Processing Data

- Procedures
 - Manual
 - Mechanical
 - Unit Record
 - Computer
- Systems
 - Ordering and Billing
 - Receiving
 - Inventory
 - Payroll

XV Applying for a Position

- Sources of Employment Information
- Applying for a Position
- Interviews
- Termination of Employment

OFFICE PROCEDURES 30

General Objectives

1. To foster the student's understanding and appreciation of the importance of the office function in the business world.
2. To develop desirable personal and professional qualities to enable students to work harmoniously with co-workers, supervisors, and the public when they enter employment.
3. To develop the student's awareness of the diversity of office occupations and assessment of individual potential.
4. To provide students with the opportunity to acquire knowledge and skills of office procedures not ordinarily included in other business education courses.
5. To integrate previously and newly acquired skills through actual or simulated office situations.

Primary References

Reid. *Modern Office Procedures*. Book 2. Pitman Publishing (Copp Clark in Canada).

or

Sparling. *Complete Course in Office Practice*. 4th Edition. McGraw-Hill Ryerson Limited.

Practice Materials

Bassett, Agnew, Goodman. *Filing Office Practice*. (K971C). Canadian Edition. Gage Educational Publishing Limited.

or

Atkinson & Agnew. *Typewriting Office Practice*. Canadian Edition. Gage Educational Publishing Limited, 1974.

Scope

Concepts I, II, IX, XI, XVIII; plus a **minimum of five** of the remaining fourteen concepts. Omit those concepts that are adequately covered in other courses offered in a particular school. Schools offering only Office Procedures 30 may choose concepts from Business Procedures 20.

Course Content

Concepts and Subconcepts

I Office Personnel

Employer Expectations
Employee Qualifications
Performance Standards
Attitudes and Deportment
Employment Opportunities

II Office Function and Organization

Function

Organization

- line and staff
- physical set-up
- work flow
- working arrangements

III Management of Work Area

- Arrangement of Work Stations
- Supplies and Equipment
- Housekeeping Duties
- Working with Others

IV Ancillary Services

- Communication
- Transportation
- Financial

V Business Letters

- Composition
- Production
- Standards

VI Business Forms and Reports

- Composition
- Production
- Standards

VII Transcription

- Shorthand Transcription
- Machine Transcription
- Standards
- Word Processing Systems

VIII Language Usage

- Spelling
- Punctuation
- World Division
- Word Usage (grammar)
- Editing and Proofreading

IX Meeting the Public

- Receptionist
- Appointments
- Telephone

X Processing Mail

- Incoming
- Outgoing

XI Records Management

- Function
- Systems
- Equipment and Supplies
- Procedures
- Changes

XII Seeking Information

- Sources
 - Manuals
 - Dictionaries
 - Directories

- Trade Publications
- Others

Procedures

XIII Financial and Statistical

Banking Forms and Routines

- Deposits
- Withdrawals
- Reconciliation

Petty Cash

Credit Cards and Charge Accounts

Customs (import and export)

XIV Purchasing and Sales

Purchasing Routines

Sales Order Routines

Stock Room Control

XV Travel Arrangements

Itineraries

Reservations

Funds for Expenses

Arrangements before Departure

Expense Reports

XVI Meetings

Preparation

- Notices, Agenda
- Assembling Reports, etc.
- Arranging Room Facilities

Recording Proceedings

Follow-Up

- Minutes
- Other Directives

XVII Professional and Technical

Legal

Medical

Petroleum and Petrochemicals

Engineering

Real Estate

Architect

Agriculture

Education

XVIII Initial Office Careers

Assessing One's Potential

Surveying Opportunities

Applying for a Position

Employer-Employee Agreements

Keeping a Position

Terminating a Position

XIX Office Practicum

Simulation

Work-Study Experience

RECORD KEEPING 10

Objectives

1. To develop an understanding of, and an appreciation for good records in personal finance, in social organizations and in single-proprietorship business of trading and non-trading concerns.
2. To develop familiarity with common business terms and their uses.
3. To inculcate habits of neatness, accuracy, and legibility.
4. To provide a course in record keeping that will build interests and discover the aptitudes of the students in this subject.

Primary Reference

Sparling. *Canadian Record Keeping Practice*. Second edition. McGraw-Hill Ryerson Limited, 1972.

Workbook (Optional)

Workbook to accompany text; contains the forms to use in completing the exercises in record keeping.

Practice Materials

One or more to be selected.

- (a) Roman and Finch. *Family Financial Management*. Second edition. (G136) Gage Educational Publishing Limited, 1969.
- (b) Baggett. *Tele-Rad Repair Company*. (B025) Gage Educational Publishing limited, 1966.
- (c) Fritz. *Service Station Recordkeeping*. (22474) McGraw-Hill Ryerson limited, 1968.

Scope for Each Course

| | |
|---------------------|---|
| Five-credit Course | — All Concepts and Subconcepts |
| Three-credit Course | — Concept I, Subconcepts A, B. Concept II, Subconcepts A,B,C. Concept III, Subconcepts A,B or C(b). |

Course Content

CONCEPT I.

IMPORTANCE OF RECORD KEEPING

Subconcepts:

- A. Business and Individual Records
 - (a) Purposes
 - (b) Importance
 - (c) Qualities for record keeping
- B. Basic Skills Needed for Record Keeping
 - (a) Penmanship
 - (b) Arithmetic
 - (c) Reading
 - (d) Copying
 - (e) Arranging
 - (f) Filing

CONCEPT II.

TYPICAL RECORDS

Subconcepts:

- A. Sales Records

- (a) Receipts
- (b) Sales Slips
- (c) Sales Taxes
- (d) Invoices
- B. Handling Cash
 - (a) Tools used (cash box, drawer, register)
 - (b) Receiving and paying cash
 - (c) Cash proof
- C. Banking
 - (a) Types and functions of bank accounts
 - (b) Bank forms (passbook, signature card, statement)
 - (c) Reconciliation
 - (d) Endorsements
 - (e) Loans
- D. Payroll
 - (a) Methods of payment
 - (b) Procedures
 - (c) Deductions
- E. Stock Records
 - (a) Importance
 - (b) Types

CONCEPT III.

APPLICATIONS

Subconcepts:

- A. Personal and Family Records
- B. Social Organizations' Financial Records
- C. Business Enterprises
 - (a) Balance sheet, income statement, and ledger accounts
- or (b) One or more practice sets

SHORTHAND

Schools may offer the following courses in shorthand using any one of three systems — Forkner (alphabetic), Gregg (symbolic) or Pitman (symbolic) — in English (or in French if operating under Section 150 of The School Act).

General Objectives of Shorthand

1. To provide the opportunities for students to develop the ability to write shorthand and transcribe at a level that meets initial employment standards.
2. To provide the opportunities for students to develop an understanding of the business environment, employment requirements, and standards of behaviour acceptable to the business community.
3. To provide an educational setting wherein the student has opportunity to apply the learnings from other disciplines with special emphasis on communication skills.

Suggested Minimum Standards

| | | |
|--------------|---|--|
| Shorthand 20 | — | write practiced material dictated at 70 w.p.m. |
| | — | write unpracticed material dictated at 50 w.p.m. |
| Shorthand 30 | — | write practiced material dictated at 90 w.p.m. |
| | — | write unpracticed material dictated at 80 w.p.m. |
| Shorthand 31 | — | write practiced material dictated at 80 w.p.m. |
| | — | write unpracticed material dictated at 70 w.p.m. |

SHORTHAND 20

Primary References

Forkner (English) — *Forkner Shorthand*, Forkner et al., Canadian Edition. Forkner Publishing Co.

Forkner (French) — *La Sténographie Forkner*, Mme Lynn Hayes. Gage.

Gregg (English) — *Gregg Shorthand*. Diamond Jubilee Series, Canadian Edition, Gregg, Leslie, Zoubek. McGraw-Hill Ryerson.

Gregg (French) — *Sténographie Gregg*. Collection 75e, Sister Marie Ernestine. McGraw-Hill Ryerson.

Pitman (English) — *New Basic Course in Pitman Shorthand*. Sir Isaac Pitman and Sons Ltd.

or

Pitman Shorterhand. Reid and Thompson. Sir Isaac Pitman Limited, and *Writing and Transcription Skill Development*. Reid, Thompson and Scott. Sir Isaac Pitman Limited.

Pitman (French) — *Méthode Moderne de Sténographie Pitman*. Sir Isaac Pitman and Sons Ltd.

Specific Objectives of Shorthand 20

The student should be able:

1. to demonstrate mastery of the principles of shorthand theory through response to the dictation of basic textbook vocabulary.
2. to read fluently from engraved plate shorthand and from his own notes.
3. to write in shorthand and transcribe practiced material dictated at a minimum of 70 w.p.m.
4. to write in shorthand unpracticed material dictated at a minimum rate of 50 w.p.m.
5. to use the tools and materials of writing and transcribing in an efficient manner.
6. to work cooperatively and congenially with others, and to accept responsibility for completion of a task.

Scope and Sequence (English or French)

Forkner — Complete coverage of the text.

Gregg — Complete coverage of the text through the seventy lessons with special emphasis on the brief forms.

Pitman — Coverage of Lessons 1 to 55 in the *New Basic Course* with special emphasis on the short forms, pages 148-151. Lessons 56-60 and additional letters commencing page 152 can be considered as enrichment material.

or

Coverage of the texts *Pitman Shorterhand* and at least the first 18 lessons in *Writing and Transcription Skill Development*.

In all systems, transcription practice should be introduced early in the course. Unpracticed new dictation and transcription should have prominence in the latter part of the course.

Optional Materials

- Forkner (English) — *Study Guide for Forkner Shorthand* (Canadian Edition).
Forkner Shorthand Outlines for the Business Vocabulary. Farmer and Lore, Gage.
- Teacher's Manual for Forkner Shorthand* (Canadian Edition)
- Gregg (English) — Workbook to accompany the text.
- Gregg Shorthand Dictionary*. Diamond Jubilee Series.
- Student Transcript for Gregg Shorthand*. Diamond Jubilee Series.
- Instructor's Handbook for Gregg Shorthand*.
- Key to Workbook for Gregg Shorthand*.
- Gregg (French) — *Transcription de la Sténographie*.
Dictionnaire de Sténographie.
Exercices de Sténographie Gregg.
- Livre du Maître qui accompagne *Exercices de Sténographie*, Gregg.
- Pitman (English) — *Student's Shorthand Dictionary and Phrase Book*: Pitman.
Pitman Shorterhand Dictionary.
- Key to New Basic Course in Pitman Shorthand*.
- Pitman (French) — *Key to Méthode Moderne de Sténographie*.

SHORTHAND 30

Primary References

- Forkner (English) — *Correlated Dictation and Transcription*. Forkner edition, Forkner et al. Forkner Publishing Co. (distributed by Gage Educational Publishing Ltd.).
- Forkner (French) — *La Sténographie Forkner*, Mme Lynn Hayes. Gage Educational Publishing Limited.
- Gregg (English) — *Gregg Dictation*. Diamond Jubilee Series, Canadian Edition, Leslie, Zoubek and Stroney.
- or
- Gregg Transcription*, Diamond Jubilee Series, Leslie and Zoubek.
- Gregg (French) — *Vitesse Progressive en Sténographie*, Gregg, Sr. M. Ernestine.
- Pitman (English) — *Correlated Dictation and Transcription*, Pitman edition, Forkner, Osborne, O'Brien, and
Basic Dictation. Duchan. Sir Isaac Pitman Ltd.
- or
- Shorterhand Skills for the Future*, Reid, Thompson, Scott, Sir Isaac Pitman Limited; and *Correlated Dictation and Transcription*, Pitman edition.
- Pitman (French) — *Méthode Moderne de Sténographie*, Pitman.

Specific Objectives of Shorthand 30

The student should be able:

1. to demonstrate mastery of writing a general business vocabulary in shorthand.

2. to write in shorthand and transcribe practiced material dictated at a minimum of 90 w.p.m.
3. to write in shorthand and transcribe unpracticed material dictated at a minimum of 80 w.p.m.
4. to use the tools and materials of writing and transcribing shorthand in an efficient manner.
5. to demonstrate good work habits and behaviour compatible with business standards.

Scope and Sequence (English or French)

In all systems there must be reinforcement of the theory from the Shorthand 20 text, coverage of the prescribed text, and further upgrading of transcription skills with emphasis on dictation of unpracticed material.

Optional Materials

Forkner (English) — Study Guides and Text Manual for *Correlated Dictation and Transcription*, Forkner Edition.

Teacher's Manual and Key to Correlated Dictation and Transcription, Forkner Edition.

Forkner Shorthand Outlines for the Business Vocabulary, Farmer and Lore, Gage.

Gage (English) — *Transcription Workbook for Gregg Dictation*.

Workbook for Gregg Transcription.

Gregg Dictionary.

Student Transcript, Gregg Dictation.

Student Transcript, Gregg Transcription.

Instructor's Handbook for Gregg Dictation.

Instructor's Handbook for Gregg Transcription.

Key to Transcription Workbook for Gregg Dictation — Leslie, 1st Edition.

Gregg (French) — *Transcription des Exercices de Vitesse Progressive*, Gregg, *Dictionnaire de Sténographie*, Gregg.

Pitman (English) — *Student's Shorthand Dictionary and Phrase Book*: Pitman, *Pitman Shorterhand Dictionary*.

Key Points to Success, M. Silcox, Pitman.

Manual and Key to Correlated Dictation and Transcription, Forkner, Osborne and O'Brien.

Key to Basic Dictation, Duchan.

Pitman (French) — *Key to Méthode Moderne de Sténographie*, Pitman.

SHORTHAND 31

This one-year course in any one of the three shorthand systems provides an opportunity for Grade XII students who have not taken the basic shorthand program to study a shorthand system for initial job entry or continued study at a post-secondary institution.

Primary References

Forkner (English) — *Forkner Shorthand*. Canadian Edition by Forkner; Brown and Forkner.

and

Correlated Dictation and Transcription, Forkner, Osborne and O'Brien (Forkner edition).

Forkner (French) — *La Sténographie Forkner*, Mme Lynn Hayes. Gage.

Gregg (English) — *Gregg Shorthand*. Diamond Jubilee Series. Canadian edition, Gregg. Leslie, Zoubek.

and

Gregg Dictation, Diamond Jubilee Series, Canadian edition, Leslie, Zoubek and Stroney.

Gregg (French) — *Sténographie Gregg*. Collection 75e., Sister Marie Ernestine.

and

Vitesse Progressive en Sténographie, Gregg, Sr. M. Ernestine.

Pitman (English) —

1. *New Basic Course in Pitman Shorthand*

and either

Correlated Dictation and Transcription.

Forkner, Osborne, and O'Brien, Pitman edition.

or

Basic Dictation, Duchan.

or

2. *Pitman Shorterhand*, Reid, Thompson, and *Writing and Transcription Skill Development*, Reid, Thompson, Scott, and *Shorterhand Skills for the Future*, Reid, Thompson, Scott. Sir Isaac Pitman Limited.

Pitman (French) — *Méthode Moderne de Sténographie*, Pitman.

Specific Objectives of Shorthand 31

The student should be able:

1. to demonstrate mastery of the principles of shorthand theory through response to the dictation of basic textbook and general business vocabulary.
2. to read fluently from engraved plate shorthand and from his own notes.
3. to write and transcribe practiced material dictated at a minimum of 80 w.p.m.
4. to write in shorthand and transcribe unpracticed material dictated at a minimum of 70 w.p.m.
5. to use the tools and materials of writing and transcribing shorthand in an efficient manner.
6. to demonstrate good work habits and behaviour compatible with business standards.

Scope and Sequence (English and French)

Forkner — Coverage of the theory text. Selected use of *Correlated Dictation and Transcription*.

Gregg — Coverage of the theory text, *Gregg Shorthand and Gregg Dictation*.

Pitman — Coverage of Lessons 1-55 of theory text with special emphasis on Shortforms, pages 148-151. Cover Units 1-35 of *Correlated Dictation and Transcription* or Units 1-35 from *Basic Dictation*, Duchan.

or:

Coverage of the three Shorterhand texts.

Dictation and transcription from new unpracticed material should have prominence in the latter part of the course. French instruction should be supplemented with English materials.

Optional Materials

Forkner (English) — *Forkner Shorthand Outlines for the Business Vocabulary*, Farmer and Lore. Gage.

Study Guide and Test Manual for Correlated Dictation and Transcription.

Teacher's Manual and Key Correlated Dictation and Transcription.

Study Guide for Forkner Shorthand, 4th Edition.

Teacher's Manual for Forkner Shorthand, 4th Edition.

Forkner (French) — *La Sténographie Forkner*, Mme. Lynn Hayes, Gage.

Gregg (English) — *Gregg Shorthand Dictionary*, Diamond Jubilee Series, Canadian Edition.

Student Transcript for Gregg Shorthand, Diamond Jubilee Series, Canadian Edition.

Student Transcript Gregg Dictation (94567).

Student Workbook for Gregg Shorthand, Diamond Jubilee Series, Canadian Edition.

Key to Workbook for Gregg Shorthand.

Instructor's Handbook for Gregg Shorthand.

Transcription Workbook for Gregg Dictation (37309).

Key to Workbook for Gregg Dictation (37312).

Instructor's Handbook for Gregg Dictation (37307).

Gregg (French) — *Transcription de la Sténographie.*

Dictionnaire de Sténographie.

Exercices de Sténographie Gregg.

Livre du Maître qui accompagne *Exercices de Sténographie*, Gregg.

Transcription des Exercices De Vitesse Progressive, Gregg.

Pitman (English) — *Student's Shorthand Dictionary and Phrase Book*: Pitman.

Key Points to Success, M. Silcox, Pitman Canada Limited.

Manual and Key to Correlated Dictation and Transcription, Forkner, Osborne and O'Brien.

Key to Basic Dictation, Duchan.

Pitman (French) — *Key to Méthode Modern de Sténographie*, Pitman.

TYPEWRITING PROGRAM

Typewriting is an integral part of the secondary school program. It contributes to general education, vocational preparation and to the development of the individual's thinking, acting and feeling capabilities which lead to self realization. The general goals of instruction are the same at whichever grade level the skill is introduced or further developed.

The content of each of the senior high school typewriting courses is described in performance terms under five generalizations. There are parallel and progressive development, refinement and application of skill throughout the three courses. The objectives listed in the content describe performance at the end of the course.

The textbook is a valuable aid in the presentation of the course. The lessons or modules, singly or in groups, follow a pattern of warmup, review, instruction, practice and application that embrace objectives from each of the five generalizations. A specific short-term objective may be described. A text provides an excellent plan for the presentation of the course. It should be used as an instructional aid and not as the sole instructor.

General Objectives

The goal of instruction in typewriting is to develop student competency in the use of the machine to produce acceptable typescript. The aim is the same regardless of whether the ultimate purpose is for personal or vocational use.

The student should be able to:

- (a) assume good posture at the typewriter while demonstrating an ability to maintain correct finger control of the keyboard and the techniques of touch typewriting;
- (b) select and use the various machine parts for the purpose or function for which each is designed;
- (c) apply rules and guidelines for appropriate set-up of personal and vocational typewriting tasks;
- (d) produce typewritten material with acceptable standards of speed and accuracy;
- (e) compose and transcribe at the typewriter demonstrating knowledge of correct language usage and correct typewriting procedures;
- (f) display efficient work habits and an appreciation of quality production.

Texts

Instruction in English

Lessenberry, Crawford, Erickson, Monkman. *20th Century Typewriting*. Ninth Edition. Elementary Course (Book One) and Advanced Course (Book Two), or Complete Course. Gage Educational Publishing, 1968.

or

Rowe, Lloyd, Winger. *Typing 300*. Canadian Edition. Volume One, 1972; and Volume Two, 1974; McGraw-Hill Ryerson Limited.

Enseignement en français

Laperle, J. *99 Lecons de Dactylographie Moderne*, Livre 1; *Dactylographie Generale*. McGraw-Hill Ryerson Limited.

et

Laperle, J. *99 Lecons de Dactylographie Moderne*, Livre 2; *Dactylographie Professionnelle*. McGraw-Hill Ryerson Limited.

Optional Materials

Learning guides, working papers, laboratory materials and teacher's manuals accompany each of the recommended text series:

20th Century Typewriting, Laboratory Materials, Lessons 1-100
Laboratory Materials, Lessons 101-225
Laboratory Materials, Lessons 226-300

Teacher's Manual, Complete Course

or

Typing 300, Learning Guides and Working Papers, Typewriting 10
Learning Guides and Working Papers, Typewriting 20
Learning Guides and Working Papers, Typewriting 30

Teacher's Service Manual for Volumes One and Two

or

99 Lecons de Dactylographie Moderne, Cahier d'Exercices I
Cahier d'Exercices II

Livre Du Maître

TYPEWRITING 10

Scope

A. 5-Credit Course

20th Century Typewriting, Elementary Course, Lessons 1-100
Laboratory Materials for Lessons 1-100.

or

Typing 300, Volume One, Parts 1-7, Modules 1-170
Learning Guides and Working Papers for Typewriting 10.

or

99 Lessons de Dactylographie Moderne, Livre I, Lecons 1-60
Cahier d'Exercices

B. 3-Credit Course

Same Scope as above, with coverage in less depth.

Course Content

Generalization One —

Acquisition of the techniques of typewriting and familiarity with machine operations are fundamental to this skill.

The student should be able to:

1. Show correct posture while at the typewriter.
2. Demonstrate touch typing mastery of the keyboard.
3. Demonstrate familiarity with the use of the machine parts that are required in the typewriting applications.
4. Identify special features of the typewriter used.

Generalization Two —

There are generally recognized typewriting procedures common to many personal typewriting applications.

The student should be able to:

5. Identify and use the correct method to perform basic typewriting procedures.
6. State, and apply when typing, the basic rules and guides.

Generalization Three —

The typewriting skill is applicable in the production of jobs for personal and personal business use.

The student should be able to:

7. Apply the rules in the set-up and production of typing jobs for personal use.
8. Compose material while typewriting.

Generalization Four —

Quality production and effective work habits contribute to typewriting satisfaction.

The student should be able to:

9. Recognize the features of quality production.
10. Demonstrate efficient work habits.
11. Evaluate achievement of objectives and set new ones.
12. Experience the joy of typewriting.

Generalization Five —

Typescript should be produced with acceptable standards of speed and accuracy control from various kinds of copy.

The student should be able to:

13. Type from straight copy material, syllabic intensity of approximately 1.20, for periods up to five minutes duration with not more than one error per minute and a range from 25 gross words a minute with no errors to 30 gross words a minute with five errors, for minimum standing.
14. Type production jobs meeting the speed and accuracy standards acceptable for personal use and as suggested in the teacher's manual that accompanies the text materials used.
15. Type from print, script and rough draft copy.

TYPEWRITING 20

Scope

20th Century Typewriting, Elementary Course, Lessons 101-150
Advanced Course, Lessons 151-225

Laboratory Materials and Lessons 101-225

or

Typing 300, Volume One, Parts 8-12, Modules 171-250
Volume Two, Parts 1-3, Modules 1-75

Learning Guides and Working Papers for Typewriting 20

or

99 Lecons de Dactylographie Moderne, Lecons 61-90 de Livre 1
Lecons 1-72 de Livre 2

Cahier d'Exercises

Course Content

Generalization One —

Refinement and development of the techniques of typewriting and knowledge of machine operations are necessary.

The student should be able to:

1. Maintain correct posture as previously acquired.
2. Demonstrate constant touch-typing mastery of the total keyboard.
3. Demonstrate knowledge of and skill in the correct application of the typewriter parts.
4. Identify the special features on manual and electric typewriters available in the school.

Generalization Two —

There are fundamental typewriting procedures applicable to personal and vocational typewriting.

The student should be able to:

5. Demonstrate and consistently apply the appropriate typewriting procedures.
6. Demonstrate knowledge and application of related and previously learned skills.

Generalization Three —

The typewriting skill is applicable in the production of many specialized jobs.

The student should be able to:

7. Demonstrate mastery of the procedure in the production of a variety of routine and specialized jobs.
8. Compose while typewriting.

Generalization Four —

Quality production and efficient work habits contribute to personal satisfaction.

The student should be able to:

9. Demonstrate recognition and appreciation of quality work through the production of neat, attractive and accurate typescript.
10. Display efficient work habits: pretyping check, maintain an orderly work area, assemble materials, plan and schedule work and time, and care of the machine.
11. Preset long-term and short-term objectives, strive for achievement, evaluate attainment.

Generalization Five —

Typescript should be produced with acceptable standards of speed and accuracy control from various sources of copy.

The student should be able to:

12. Type from straight copy material, syllabic intensity of approximately 1.40, for periods up to five minutes duration with not more than one error per minute and a range from 35 gross words a minute with no errors to 45 gross words a minute with five errors, for minimum standing.
13. Type production jobs meeting the speed and accuracy standards acceptable for personal and personal business use as suggested in the teacher's manual that accompanies the text materials used.
14. Type from printed and handwritten copy and from dictation.

TYPEWRITING 30

Scope

20th Century Typewriting, Advanced Course, Lessons 226-300
Laboratory Materials for Lessons 226-300

or

Typing 300, Volume Two, Parts 4-12, Modules 76-270
Learning Guides and Working Papers for Typewriting 30

or

99 Lecons de Dactylographie Moderne, Lecons 73-99 de Livre 2
Cahier d'Exercises
Travail Supplémentaire

Generalization One —

Mastery of the techniques of typewriting and proficient use of the machine are essential.

The student should be able to:

1. Maintain correct posture.
2. Demonstrate automatic touch-typing mastery of the keyboard.
3. Make optimal use of all machine parts.
4. Identify the unique and special features available on various makes and models of manual and electric typewriters on the market; e.g., carbon and fabric ribbons, correcting tape, magnetic tape or card, justifier, carriage widths, type styles, special keyboards, proportional spacing, etc.

Generalization Two —

Proficiency in the performance of common and complex procedures are essential in typewriting applications.

The student should be able to:

5. Demonstrate proficiency in the frequent applications of the appropriate typewriting procedures.
6. Apply related learnings and skills when typing.

Generalization Three —

The typewriting skill is applicable in expert production of jobs for personal and vocational use.

The student should be able to:

7. Demonstrate mastery of the procedure for the production of typical typing jobs for personal and vocational use.
8. Compose while typewriting.

Generalization Four

Quality production and efficient work habits contribute to career satisfaction.

The student should be able to:

9. Produce quality typescript that is accurate, properly positioned, attractive in appearance, and meet the criteria for its application.
10. Show competence in handling materials and equipment efficiently, in working under pressure of time, in working for sustained periods of time, and in completing assignments.
11. Demonstrate self-reliance and ability to make decisions, solve problems, and work with a minimum of direction and instruction.

Typescript should be produced with acceptable job-entry standards of speed and accuracy.

The student should be able to:

- 12. Type from straight copy material, syllabic intensity of approximately 1.50, for periods of five minutes duration with not more than one error per minute, and a range from 45 gross words a minute with no errors to 50 gross words per minute with five errors, for minimum standing.

Occasionally type from straight copy material for periods of ten minutes duration.
- 13. Type production jobs meeting the speed and accuracy standards expected in business offices and suggested in the teacher's manual that accompanies the text materials used.
- 14. Type from printed and handwritten copy, edited and unedited, with and without proofreader's marks, and from dictation, live and recorded.

Allocation of Evaluation Factors for Grading

| Generalizations | Performance Objectives | Jr. High | Typewriting | | |
|-------------------------|------------------------|----------|-------------|-----|-----|
| | | | 10 | 20 | 30 |
| One — Techniques | 1, 2, 3, 4 | 40% | 25% | 10% | 80% |
| Two — Procedures | 5, 6 | 30% | 15% | 10% | |
| Three — Production | 7, 8 | | 25% | 50% | |
| Four — Work Habits | 9, 10, 11 | | 10% | 10% | |
| Five — Speed & Accuracy | 12, 13, 14 | 30% | 25% | 20% | 20% |

DRAMA

PRELIMINARY STATEMENT

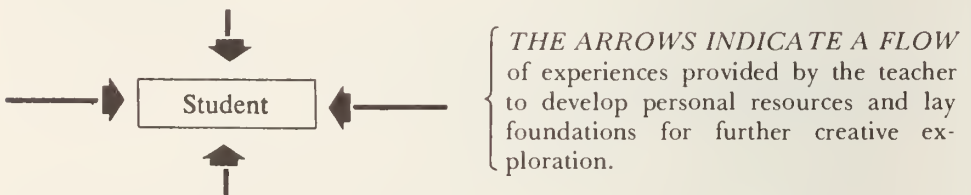
Dramatic activity involves the whole person — the development of the individual through experience and expression of his creative self — in movement, mime, dance, improvisation or the scripted play.

All drama — and we use the term to include not only formal theatre but the study of improvisation, pantomime, film, television, media shows, dance, opera, radio plays, etc. — *can be creative* — if presented in such a way that the full resources of each individual are challenged.

The Secondary School Drama Curriculum from Grades VII to XII is predicated on the belief that drama must begin with development of the creative faculties of the student. From this base the course is built progressively in order to obtain for the student at the advanced level the broadest possible theatrical experience, for example, play production, critical viewing of theatre, film, television, film production, etc. Therefore, teachers should note that this program of studies differs from the previous one in that the program is not developed through five or six grades but through *three levels*.

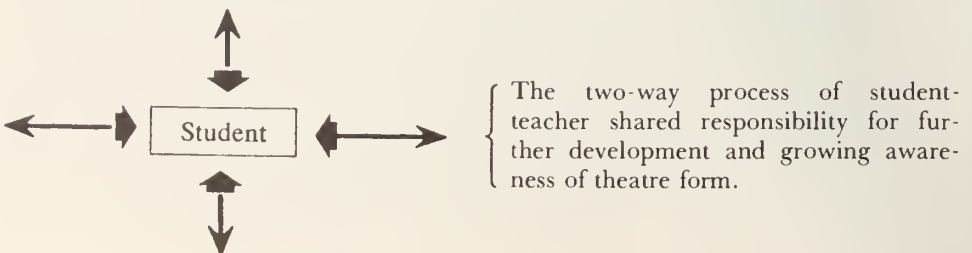
Level 1

Initial — development of creative faculties.



Level 2

Intermediate — enrichment of creativity and a growing awareness of art form which may include the limited theatre experience.



Generalization Five —

Typescript should be produced with acceptable job-entry standards of speed and accuracy.

The student should be able to:

- 12. Type from straight copy material, syllabic intensity of approximately 1.50, for periods of five minutes duration with not more than one error per minute, and a range from 45 gross words a minute with no errors to 50 gross words per minute with five errors, for minimum standing.

Occasionally type from straight copy material for periods of ten minutes duration.
- 13. Type production jobs meeting the speed and accuracy standards expected in business offices and suggested in the teacher's manual that accompanies the text materials used.
- 14. Type from printed and handwritten copy, edited and unedited, with and without proofreader's marks, and from dictation, live and recorded.

Allocation of Evaluation Factors for Grading

| Generalizations | Performance Objectives | Jr. High | Typewriting | | |
|-------------------------|------------------------|----------|-------------|-----|-----|
| | | | 10 | 20 | 30 |
| One — Techniques | 1, 2, 3, 4 | 40% | 25% | 10% | 80% |
| Two — Procedures | 5, 6 | 30% | 15% | 10% | |
| Three — Production | 7, 8 | | 25% | 50% | |
| Four — Work Habits | 9, 10, 11 | | 10% | 10% | |
| Five — Speed & Accuracy | 12, 13, 14 | | 25% | 20% | |

DRAMA

Alternative Program — New Course

PRELIMINARY STATEMENT

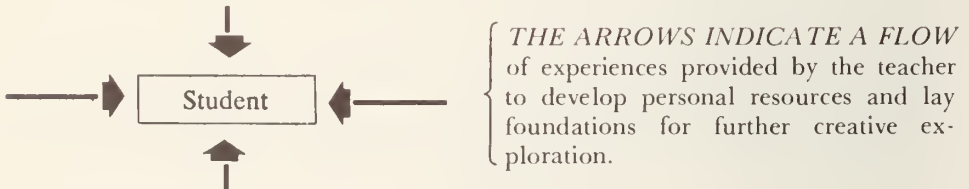
Dramatic activity involves the whole person — the development of the individual through experience and expression of his creative self — in movement, mime, dance, improvisation or the scripted play.

All drama — and we use the term to include not only formal theatre but the study of improvisation, pantomime, film, television, media shows, dance, opera, radio plays, etc. — *can be creative* — if presented in such a way that the full resources of each individual are challenged.

The Secondary School Drama Curriculum from Grades VII to XII is predicated on the belief that drama must begin with development of the creative faculties of the student. From this base the course is built progressively in order to obtain for the student at the advanced level the broadest possible theatrical experience, for example, play production, critical viewing of theatre, film, television, film production, etc. Therefore, teachers should note that this program of studies differs from the previous one in that the program is not developed through five or six grades but through *three levels*.

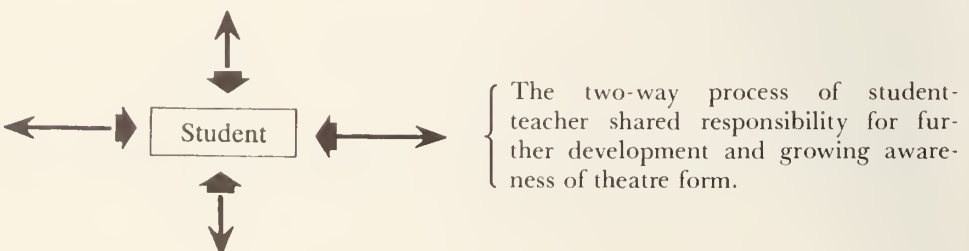
Level 1

Initial — development of creative faculties.



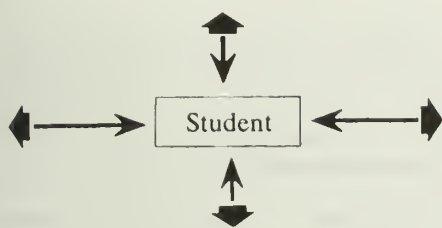
Level 2

Intermediate — enrichment of creativity and a growing awareness of art form which may include the limited theatre experience.



Level 3

Advanced — continuing development of creative faculties plus theatre experience.



{ The student should now be able to participate in advanced theatre form and utilize his inner resources to share a meaningful experience with an audience.

IN THE JUNIOR HIGH SCHOOL AND IN DRAMA 10 IT IS EXPECTED THAT THE DRAMA PROGRAM WILL DRAW FROM THE INITIAL AND INTERMEDIATE LEVELS.

INITIAL LEVEL (Grades 7 and 8)

Drama has a unique contribution to make in the emotional and intuitive development of the student, as the academic disciplines have in his intellectual development.

The objectives of the Initial Level are **not** theatre oriented but concentrate on the development of the student's own resources.

Statement of Objectives

1. To develop concentration
2. To develop sensory distinction
3. To obtain freedom and control in physical movement
4. To develop imagination
5. To establish foundations for further exploration in creative experience
6. To develop an awareness of the world today through an understanding of today's media and the responsibility of media to society.

It is intended that some or all of the units be used, each being developed to a greater or lesser extent, to provide a variety of experience. However, it is possible for a teacher to emphasize **one** of the units and develop it over a period of a semester or year, as these units are based on the premise that teachers teach best what they know and what they feel most confident in.

Units

The activities for each of the following units are based upon the six parts of the Statement of Objectives.

CREATIVE SPEECH — The dynamic and confident use of language to communicate original and interpretive thoughts and ideas, the emphasis being on individuality rather than on the acquisition of technical skills.

DRAMATIC LITERATURE AS A CREATIVE EXPERIENCE — The study of plays, radio scripts, television scripts, themes of films, etc., as a medium of communication of thoughts, feelings, ideas, **not as an academic analysis**; i.e., the play or film produced — the story told, the characters portrayed.

MEDIA AS A COMMUNICATIVE ART — A study through a variety of experiences of contemporary media (television, films, radio, newspapers, etc.) to develop an awareness and appreciation of the contribution of these changing forms in society.

IMPROVISATIONAL THEATRE — Improvisation means a situation, story, play without a script; such a situation, story, play can be told with or without words. The emphasis in this initial level is on movement improvisation rather than the extensive use of improvised dialogue, which is a more complex and advanced form of improvisation.

LINKING DRAMA WITH OTHER CREATIVE ARTS — The intention of this unit is to offer the drama teacher a variety of approaches through utilization of aspects of other creative arts, thus emphasizing the strong interaction amongst all the arts.

Recommended Teacher Reference:

Way, Brian. *Development Through Drama*. Longman Canada Ltd.

INTERMEDIATE LEVEL (Grade 9 and Drama 10)

Preliminary Statement

The Intermediate Level is an extension and further development of the objectives stated for the Initial Level. These objectives are:

1. To develop concentration
2. To develop sensory distinction
3. To obtain freedom and control in physical movement
4. To develop imagination
5. To establish foundations for further exploration in creative experience
6. To develop an awareness of the world today through an understanding of today's media and the responsibility of media to society.

At this level is added:

7. To channel individual creative resources into group activities and develop an awareness of dramatic form.
8. To introduce the scripted one-act play.

It is expected that the student at the Intermediate Level has had the benefit of a year or two at the Initial Level. Therefore, this program, or any part of it, will not be incorporated into Grades VII or VIII. It is also expected that the material covered in the Curriculum Guide to the Initial Level will be referred to regularly and used frequently at the Intermediate Level. It bears repeating that the total program presupposes that the dramatic experience is built on the very firm base of the student's development of his own resources. Therefore, at the teacher's discretion, a unit or units from the Initial Level may be adapted for use with "experienced" students, if the teacher believes that they are not properly prepared to benefit from the more sophisticated outlook of the Intermediate Level. It is also possible to use material from the Intermediate Level while continuing to use the individual-centred method of

the Initial Level. Teachers should not commit students to the group-centred approach until the students are ready for it.

The material in the Intermediate Level is presented through the means of three major units, each of which involves a progressive series of group projects designed to stimulate interest in various aspects of theatre art. The emphasis throughout is on an improvisational approach with each unit involving, to a greater or lesser degree, elements of the five units introduced into the Initial Level Guide.

Again, it is hoped that the teacher will make use of all three units during the course, although this is not mandatory. There is a shift in emphasis from individual work to group work intended to develop the student's ability to communicate, first with the group, and then with an audience. It is desirable, therefore, that, during the course of this level, much more of the student's work be presented for the class; that through class discussion the strengths and weaknesses of the work done is analyzed; that some exercises will be developed to a more finished state for viewing by other classes or small assemblies; that, in short, opportunities for a closed (i.e. classmates, other classes, invited friends and parents) audience situation exist.

Outline of Units

Three areas of emphasis, which are interrelated, each incorporating the other two, are suggested. Since the Intermediate Level is a bridge between the Initial Level and the Advanced Level, the projects included within each area indicate a progression in complexity and sophistication, culminating in limited theatre experience.

IMPROVISATIONAL THEATRE — The devising and developing of improvised movement and speech plays (with form, structure, discipline implied). This does not exclude the use of source material from literature both as stimulus and as framework; likewise, media provides both stimulus and enrichment to the improvised play.

For example:

- planned, rehearsed improvisation of situations, scenes and short plays
- planned, rehearsed dance dramas
- use of light, sets, projected and other scenery etc. to stimulate and or enhance improvisations and dance drama
- poetry (various kinds) to create a movement, sound and light collage.
- descriptive prose (various kinds) linked with movement, sound, light etc. to create a dramatic statement
- dramatisation of short stories
- play building from a theme, involving production as a culminating project of a short play for presentation in a closed situation.

LITERATURE — The written and spoken word would be the core source material of this unit; **improvisation** would be incorporated as part of the process of developing an awareness of the art of theatre; **media** would act as enrichment.

For example:

- words, phrases, quotations as basis for collage of words, movement
- poetry (various kinds) in conjunction with sound, light and movement for enrichment
- improvised dramatisation on scenes from short stories
- original script writing, stimulated by or adapted from source material
- scenes, one-act plays used as basis for improvisation
- use of improvisation as an approach to producing scenes and short plays
- improvisation of crowd scenes from plays, novels, etc.
- collage of poems, scenes, dramatisations, original writing to produce a short presentation as culminating project.

MEDIA — The exploration of media (film, projections, light) to create a piece of art implies the use of improvised movement and speech; the concept of statements, documentary type plays provide opportunities for using source material.

For example:

- exploration of light, sound, for effect to enhance improvised movement and speech plays
- use of poetry, prose, scenes as a basis for experimentation with light, sound
- exploration into film:
 - (1) as enhancement of improvisations
 - (2) as a creative art (N.B. **not** a study of Hollywood film techniques)
- exploration with video cameras using original scripted or improvised material
- use of puppets with original scripted or improvised material
- use of film, projectors, to enhance documentary drama
- short culminating project involving improvised dialogue, dance drama, original or source material (e.g. poems, scripts) as a basis for a collage of recorded sound, light, film, projected scenery as production enrichment.

EXTENSION OF PROGRAM FOR DRAMA 10

The Drama 10 Course must serve two functions: it should provide a foundation for the two senior courses in dramatics, but it must also be a terminal course in itself since many students will not continue with the advanced courses. Many schools that offer Drama 10 will not be offering Drama 20 and 30.

Text

Barnes and Sutcliffe. *On Stage, Everyone*. Macmillan

Course Content

1. Acting
 - (a) characterization — mental
 - (b) characterization — physical
2. Stagecraft and Lighting
3. Voice Production
4. Movement

ADVANCED LEVEL (Drama 20 and 30)

Statement of Objectives

The Advanced Level is a further development and extension of the objectives of the two previous levels.

1. To encourage personal development through creative experience in:
 - (a) Concentration
 - (b) Sensory distinction
 - (c) Freedom and control in physical movement
 - (d) Imagination.
2. To motivate continued experience and training in various fields of Drama.

3. To develop an awareness of the world today through an understanding of today's media and the communication by means of these media.
4. To develop an awareness of the demands of theatre art form.

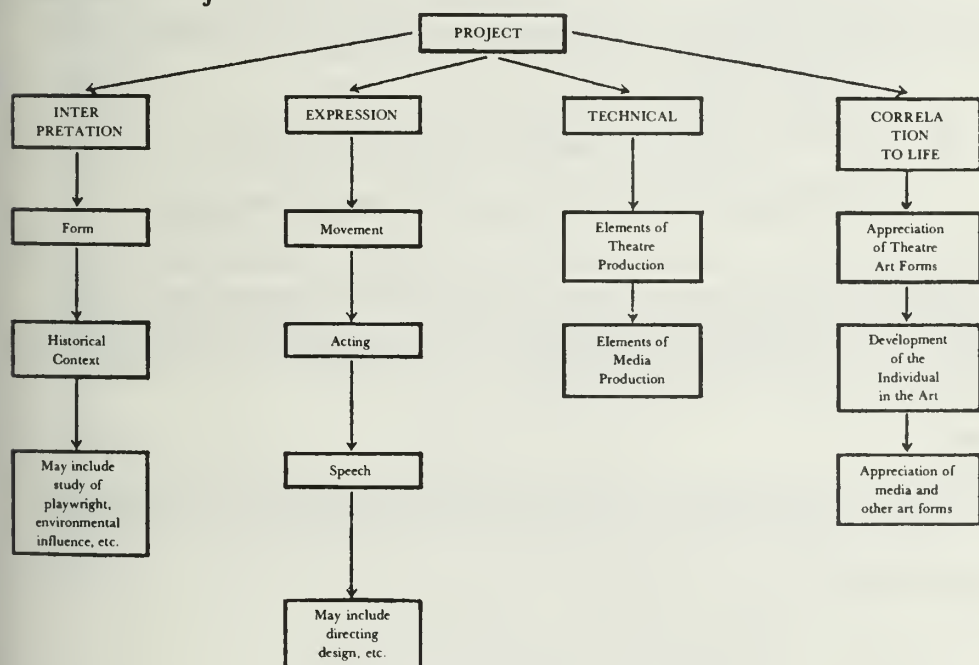
Preliminary Statement

It is assumed that the student at the Advanced Level has had a thorough grounding in the Initial and Intermediate Levels, and that, therefore, this level is intended for some form of extended dramatic experience culminating in presentation. It is expected that the teacher at the Advanced Level will refer to the aims of the Initial and Intermediate Levels, and will, by various exercises, constantly reinforce the skills developed through these two earlier levels.

At the advanced level the project has been used as the method. It is suggested that at least one major project should be undertaken as well as other minor projects. The level has been divided into major and minor projects because the full concept of dramatic form (as indicated in the chart) cannot be achieved as fully in the minor projects as in the major projects. If the form of one project precludes study in any area, this should be compensated for in the study of other projects.

The culmination of a project could be a presentation, as finished as the resources of the class and the school will permit. Whether this presentation should be to a closed or open audience must be governed by the decision of the teacher as to which type of presentation will most benefit the students involved. An open audience presentation is not mandatory.

Outline of Projects



MAJOR PROJECT — This is intended to be a study in depth including all the suggested areas of study and taking an extended period of time to complete; e.g. original presentation, scripted play, film, combination of various forms of presentation.

MINOR PROJECT — This is intended to be a study capable of culmination in a shorter period of time and not necessarily including all the suggested areas of study; e.g. puppetry, dramatic reading, radio play.

EXTENSION OF PROGRAM FOR DRAMA 20

Drama 20 is a course for those students who have shown particular interest in or aptitude for dramatics. This course should make greater demands upon the student than did Drama 10. It is hoped that the students in this class (possibly in conjunction with the students of Drama 30) will participate in the production of a full length play for public performance. Each student should have experience in production since production is the goal of drama study. Participation, however, need not be in an acting capacity. Wherever possible, production and stagecraft tasks should be performed by the students.

Text

Barnes and Sutcliffe. *On Stage, Everyone*. Macmillan.

Course Content

1. Acting
 - (a) Characterization
 - (b) Techniques.
2. Production and Stagecraft
 - (a) The three-act play in relation to form, type and structure (plot, climax, theme, characterization)
 - (b) The demands of the three-act play on the various personnel involved
 - (c) The choosing of a three-act play for school production
 - (d) The analysis of the script for production and the making of the prompt script
 - (e) Stagecraft (Refer to *Play Production*, Nelms).
3. Study of Theatrical Art Terms in their historical context.

EXTENSION OF PROGRAM FOR DRAMA 30

Drama 30 is concerned primarily with giving individual help in any chosen field of theatre activity. Each student should be taken as far as possible within the limitations of time and his talents. The work of the course should be culminated in the public performance of a full length play (probably in conjunction with the Drama 30 students).

Text

Nelms. *Play Production*. Barnes and Noble (Fitzhenry and Whiteside in Canada.)

Course Content

1. Acting.
2. Design.
3. Production.
4. Directing.
5. Study of Theatrical Art Terms in their historical context.

mental tool and procedural skills which help prepare them to enter a family of occupations.

2. to provide students with courses that serve as vehicles which help them relate their academic knowledge to vocational competencies.
3. to provide students with courses that serve as vehicles which help them relate their academic knowledge to vocational competencies.
4. to provide students the opportunity to develop basic competencies, both academically and in work skills to enter either a job or a post-high school institution for further education.
5. to provide students with the environment whereby they may develop sound attitudes, acceptable work habits, and achieve a feeling of accomplishment.

INDUSTRIAL EDUCATION 10, 20, 30 SERIES (NEW PROGRAM)

Introduction

The Industrial Education 10, 20, 30 courses consist of content selected from fifty-seven one-credit modules.

The courses may be offered in an A and B series with each series consisting of 4 or 5 modules selected from the fifty-seven. Consideration must be given for prerequisite modules.

Each module requires a minimum of 25 hours of instruction time. The modules contain content related to the career fields of:

Visual Communications
Mechanics
Construction and Fabrication
Electricity-Electronics

Specific programming is left to local planners. Modules may be clustered to relate to career fields or they may represent a number of areas.

SAFETY NOTE

Every industrial education laboratory must have an effective safety program. The teacher must be vigilant to provide adequate and continuous supervision so that safe practices are followed in all laboratory activities.

INDUSTRIAL EDUCATION 10(a)-(b), 20(a)-(b), 30(a)-(b)

The Industrial Education courses consist of content selected from fifty-seven one-credit modules. Each course requires the completion of a minimum of four modules to qualify for 4 - 5 credits. Some flexibility is allowed in order to accommodate most situations. By increasing the hours on a 25 credit module the requirement of 125 hours for a five credit course can be met with four modules. Students may take both the A and B selections of the grade level course or take the A's only.

INDUSTRIAL EDUCATION 10, 20, 30 Matrix

(each module is 25 to 33 hours in length)

CAREER FIELD

A. Electricity — Electronics

1. Electricity
2. Electronics
3. Power Supplies
4. Amplifiers
5. Audio
6. Servicing
7. Radio
8. Television
9. Logic Circuits
10. Computer
11. Electric Wiring
12. Design and Construction

B. Materials

1. General Woods
2. Building Construction I
3. Building Construction II
4. Cabinet Making I
5. Cabinet Making II
6. General Metals
7. Sheet Metal
8. Machine Shop
9. Welding Arc
10. Welding Gas
11. Foundry
12. Plastics I
13. Plastics II
14. Earths Ceramics
15. Earths Concrete
16. Textiles
17. Foods

C. Power Technology

1. Conventional Heat Engines
2. Small Engine Tune-Up
3. Small Engine Overhaul
4. Automobile Care
5. Automobile Tune-Up
6. Mechanical Systems
7. Electro-Mechanical Controls
8. Electrical Systems
9. Nonconventional Power Sources
10. Appliance Repairs
11. Hydraulics and Fluidics
12. Pneumatics and Fluidics

D. Visual Communications

1. Offset Lithography
2. Line Photography
3. Black and White Photography
4. Color Photography
5. Screened Photography
6. Layout and Design
7. Offset and Printing Production
8. Mechanical Drafting
9. Topographical Drafting
10. Architectural Drafting
11. Relief Printing
12. Print-Machine Techniques

E. General Modules

1. Developmental
2. Research
3. Production Science

A. ELECTRICITY — ELECTRONICS

Module one: **Electricity**

Reference: Buban, Peter and Marshall L. Schmitt. *Understanding Electricity-Electronics*, 1975

- Content:
1. Energy conversion
 2. Safety
 3. Energy control
 4. Energy transmission
 5. Energy utilization
 6. Occupations
 7. Technological implications

Module two: **Electronics**

Reference: Buban, Peter and Marshall L. Schmitt. *Understanding Electricity-Electronics*, 1975

- Content:
1. Safety
 2. Energy converters and transmission
 3. Measurements
 4. Energy control
 5. Societal implications

Module three: **Power Supplies**

Reference: Buban, Peter and Marshall L. Schmitt. *Understanding Electricity-Electronics*, 1975

- Content:
1. Safety
 2. Energy conversion
 3. Measurement, volts, amps, resistance
 4. Graphic interpretation
 5. Environmental implications
 6. Control: transformers, rectifiers, capacitors, inductors, resistors
 7. Transmission

Module four: **Amplifiers**

Reference: Buban, Peter and Marshall L. Schmitt. *Understanding Electricity-Electronics*.
Loper, Orla E. and Arthur Ahr. *Introduction to Electricity and Electronics*, Delmar, 1973

- Content:
1. Energy conversion AC-DC
 2. Energy control
 3. Electron theory
 4. Schematics

Module five: **Audio**

Reference: Buban, Peter and Marshall L. Schmitt. *Understanding Electricity-Electronics*.
Loper, Orla E. and Arthur Ahr. *Introduction to Electricity and Electronics*

- Content:
1. Measurement — VTVM, VOM, Oscilloscope, signal generators
 2. Transmission
 3. Input and output transducers
 4. Amplification
 5. Consumer information

Module six: **Servicing**

- Content:
1. Systems analysis
 2. Geographic interpretation
 3. Instrument utilization
 4. Reference use
 5. Occupations

Module seven: **Radio**

Reference: Buban, Peter and Marshall L. Schmitt. *Technical Electricity & Electronics*, 1972

- Content:
1. The radio system
 2. Instrument use
 3. Modulation
 4. Transmission

Module eight: **Television**

Reference: Buban & Schmitt. *Technical Electricity and Electronics*, 1972

- Content:
1. Safety
 2. The television system
 3. Transmission
 4. Control
 5. Measurement
 6. Troubleshooting
 7. Occupations

Module nine: **Logic**

Reference: Rony and Larsen. *Bug Book*, I, II and III
Radio Shack. *Understanding Solid State*

- Content:
1. Number systems
 2. Basic digital logic
 3. Code conversion
 4. Memories
 5. Micro-processors

Module ten: **Computer**

Reference: Byle. *Computers*. Green Publishing

- Content:
1. Data processing systems
 2. Storage systems
 3. Output
 4. Programming
 5. Societal implications
 6. Checking the system

Module eleven: **Electric Wiring**

References: *Canadian Electrical Code* (latest).
Graham. *Interior Electric Wiring*, Residential 6th ed.

- Content:
1. Energy forms: heat, light, chemical
 2. Control: volt, resistance, ampere, watt
 3. Conductors
 4. Circuitry — basic for a house — lighting, receptacles, kitchen

Module twelve: **Design and Construction**

Reference: Buban and Schmitt. *Technical Electricity and Electronics* 1972

- Content:
1. Use of test instruments: VOM, VTVM, Oscilloscope
 2. Technical implications — work schedules, production charts, problem identification
 3. Project planning and construction
 4. Energy control and transmission
 5. Safety

B. MATERIALS

Module one: General Woods

Reference: Miller, H. G. *Hand and Machine Woodwork* (Revised Ed., 1972)

- Content:
1. Safety
 2. Working drawings
 3. Measuring instruments
 4. Material removal — sawing, planing, routing, drilling, chiseling, filing
 5. Occupations
 6. Consumer awareness of wood products
 7. Sociological implications of tools and machines
 8. Environmental implications — noise, dust, chemicals

Module two: Building Construction 1

Reference: Miller. *Hand and Machine Woodwork* 1972
Mix and Ciroir. *Practical Carpentry*

- Content:
1. Developing plans
 2. Types of instruction
 3. Mass production — modular construction
 4. Safety
 5. Building materials
 6. Materials fabrication — shaping, fastening
 7. Measurement
 8. Occupations in construction

Module three: Building Construction 2

Reference: Miller. *Hand and Machine Woodwork* 1972
Feirer. *Woodworking for Industry* 1971

- Content:
1. Plan reading
 2. Framing types
 3. Materials
 4. Shaping materials
 5. Construction methods
 6. Sub-trades

Module four: Cabinet Construction 1

Reference: Miller. *Hand and Machine Woodwork* 1972
Wagner. *Modern Woodworking* 1974

- Content:
1. Environmental implications — conservation of forests
 2. Occupational opportunities
 3. Material forming and shaping; plywood, chip-board, abrasives
 4. Material testing

5. Safety
6. Material combination — bonding, coating, fasteners
7. Plan reading

Module five: **Cabinet Construction 2**

Reference: Miller. *Hand and Machine Woodwork* 1972
Wagner. *Modern Woodworking* 1974

- Content:
1. Interpreting plan
 2. Measurement (metric)
 3. Material removal
 4. Material combination
 5. Material forming
 6. Occupational opportunities
 7. Consumer awareness in selection of wood products

Module six: **General Metals**

Reference: Feirer, John L. *General Metals*

- Content:
1. Occupational information
 2. Safety
 3. Metal extraction
 4. Metal removal processes
 5. Metal forming
 6. Metal restructuring
 7. Fastening

Module seven: **Sheet Metal**

Reference: Feirer. *General Metals*
Delmar. *Sheet Metal Hand Processes*

- Content:
1. Occupational information
 2. Safety
 3. Measurement and layout
 4. Material — removal, forming, combining, fastening
 5. Protective coatings

Module eight: **Machine Shop**

Reference: Walker. *Machining Fundamentals* 1973

- Content:
1. Occupational opportunities
 2. Safety
 3. Measurement and layout
 4. Material removal — shearing, turning, shaping, milling, drilling, sawing, abrading
 5. Thread cutting

Module nine: **Arc Welding**

Reference: Pender. *Welding*

- Content:
1. Occupational information
 2. Safety
 3. Setting up machine and rod identification
 4. Welding — flat, lap, tee, edge
 5. Weld testing

Module ten: **Oxy-Acetylene Welding**

Reference: Pender. *Welding*

- Content:
1. Safety
 2. Setting up the equipment
 3. Braze welds
 4. Test welds
 5. Cutting with the torch

Module eleven: **Foundry**

Reference: Feirer, John L. *General Metals*

- Content:
1. Occupational information
 2. Safety
 3. Metal extraction
 4. Material forming
 - patterns
 - foundry practice
 - casting

Module twelve: **Plastics 1**

Reference: Cherry. *General Plastics*

- Content:
1. Occupational and safety information
 2. Classification
 3. Material removal
 4. Pollution problems
 5. Forming methods
 - vacuum
 - blow forming
 6. Material combination

Module thirteen: **Plastics 2**

Reference: Cherry. *General Plastics*

- Content:
1. Environmental implications
 2. How plastics are made — kinds
 3. Forming plastics
 - molding
 - casting
 - foaming
 - restructuring

Module fourteen: **Ceramics**

Reference: Brennan, Thomas J. *Ceramics*

- Content:
1. Occupational and safety information
 2. Natural materials: clay, sand
 3. Material forming
 - by hand
 - with molds
 4. Glazing
 5. Firing

Module fifteen: **Earths — Concrete**

Reference: *Concrete Materials and Methods of Concrete Construction*. Canada Standards Association A 23-1-1967

- Content:
1. Natural materials
 - manufacture of cement
 - mixing
 2. Forming
 3. Cost — benefits of concrete
 4. Environmental implications — durability

Module sixteen: **Textiles**

Reference: Craig, Hazel T. *Clothing — A Comprehensive Study*

- Content:
1. Textiles
 - natural
 - man-made
 2. Clothing selection
 - labels
 - dollar value
 3. Clothing care
 4. Sewing machine
 5. Steam iron
 6. Garment construction

Module seventeen: **Foods**

Reference: Shank and Fitch. *Guide to Modern Meals*

- Content:
1. Sanitation and safety
 2. Nutrition
 3. Management
 4. Food preparation
 5. Occupations

C. POWER TECHNOLOGY

Module one: **Conventional Heat Engines**

Reference: Duffy. *Power, Prime Mover of Technology*

- Content:
1. Energy conversion
 2. Analyze engine efficiency
 3. Control factors
 4. Horsepower
 5. Sociological implications
 6. Occupational information

Module two: **Small Engines**

Reference: Roth. *Small Gas Engines*

- Content:
1. Measurement of power
 2. Energy transfer
 3. Diagnose engine faults
 4. Energy utilization
 - carburetor
 - ignition
 - lubrication
 5. Repair engine

Module three: **Small Engine Overhaul**

Reference: Roth. *Small Gas Engines*

- Content:
1. Safety
 2. Troubleshooting procedure
 3. Inspect, analyze and test condition of engine
 4. Replace and/or adjust components
 5. Test engine efficiency

Module four: **Automobile Care**

Reference: *The Time-Life Book of the Family Car*. Time-Life Books, 1974

- Content:
1. Systems — engine, chassis, power train, body
 2. Sub-system — fuel, ignition, lubrication, cooling
 3. Maintenance
 4. Insurance
 5. Safety

Module five: **Auto Tune-Up**

Reference: *The Time-Life Book of the Family Car*. 1974

- Content:
1. Energy conversion
 2. Troubleshoot common problems
 3. Locate relevant specifications
 4. Tune-up car
 5. Implications of polluting engines

Module six: **Mechanical Systems**

Reference: Walton, Harry. *The How and Why of Mechanical Movements*. Popular Science Books

- Content:
1. Definition of terminology
 2. Transmission systems and devices
 3. Energy conversion — power, efficiency, motion

Module seven: **Electro-Mechanical Controls and Troubleshooting**

References: Duffy. *Power, Prime Mover of Technology*
Gerrish. *Electricity* (4th edition)

- Content:
1. Energy conversion — magnetism, electricity, induction, electro-magnets
 2. Measuring electrical units; volts, ohms, amps, watts
 3. Read schematics and drawings
 4. Control factors: mechanical, electrical
 5. Analysis
 - procedures
 - equipment
 - data collection
 - measurement
 6. Troubleshooting

Module eight: **Electrical Systems**

Reference: Roth. *Small Gas Engines*

- Content:
1. Terminology, definitions
 2. Safety
 3. Small engine electrical systems
 4. Troubleshoot and repair electrical system

Module nine: **Non-Conventional Power Sources**

Reference: Duffy. *Power, Prime Mover of Technology*

- Content:
1. Energy Sources — solar, chemical, thermal, piezo-electric, wind, external combustion engine
 2. Energy transfer — electron theory, connectors, insulation control efficiency.
 3. Energy utilization from the various sources
 4. Societal implications, e.g., solar energy

Module ten: **Appliance Repair and Troubleshooting**

Reference: Anderson. *Home Appliance Servicing*. Audel, 1974

- Content:
1. Safety
 2. Care and use of tools and equipment
 3. Graphic interpretation of schematics
 4. Troubleshooting techniques
 5. Consumer awareness
 6. Occupational opportunities

Module eleven: **Hydraulics and Fluidics**

Reference: Dudley A. Pease. *Basic Fluid Power*

- Content:
1. Assemble, operate and control a simple hydraulic system
 2. Terminology and definitions
 3. Energy transfer — laws of hydraulics
 4. Energy utilization

Module twelve: **Pneumatics and Fluidics**

Reference: Compressed Air Institute. *Compressed Air Handbook*

- Content:
1. Energy conversion — hydrodynamic and hydrostatic
 2. Interpret schematics
 3. Define new terms
 4. Analyze a simple pneumatic system
 6. Occupational information

D. VISUAL COMMUNICATIONS

Module one: **Principles of Lithography**

Reference: Broekhuizen. *Graphic Communications*

- Content:
1. Image creation — design
 2. Image generation — point system — symbols — layout
 3. Image conversion — electrostatic masters — diffusion transfer process — direct image masters
 4. Reproduction — tools, materials
 5. Finishing — cut, collate, jog, fold, etc.

Module two: **Line Photography**

Reference: Cogoli. *Photo Offset Fundamentals*

- Content:
1. Image creation — sketches — dummy layouts
 2. Image generation — working drawings
 3. Safety procedures
 4. Operate process camera
 5. Reproduction — offset operations
 6. Finishing — several processes

Module three: **Black and White Photography**

Reference: Kodak. *Black and White Guide*

- Content:
1. Image creation — elements of good photographic composition
 2. Image generation — cameras, photographic equipment — light, lenses
 3. Image conversion — film development
 4. Reproduction — photographic papers
 5. Finishing — techniques of washing prints, retouching, mounting, framing

Module four: **Color Photography**

References: McCoy. *Practical Photography*
Kodak. *Color Data Guide*

- Content:
1. Image creation — elements of photographic composition

2. Image generation — types of cameras, lighting, film, lenses, filters
3. Image conversion — develop color film
4. Reproduction — photographic papers, tools, chemistry
5. Finishing — drying color prints, retouching, mounting

Module five: **Screened Photography**

Reference: Kodak. *Curriculum in Halftone Photography*

- Content:
1. Image creation — color overlays, screened tints — color photographs — thumb nail sketches
 2. Image generation — drawings, type composition, layout
 3. Image conversion — operate process camera, scales, lighting, halftone, filters
 4. Environmental concerns — dumped chemicals
 5. Reproduction — offset press
 6. Finishing — specific to the project
 7. Consumer awareness

Module six: **Layout and Design**

Reference: Bockus. *Advertising Graphics*

- Content:
1. Image creation — basic drawing methods — commercial art techniques — principles of design — symbols — tools
 2. Image generation — layout styles
 3. Image conversion — electrostatic, diffusion transfer, photo-mechanical
 4. Reproduction — offset press
 5. Finishing

Module seven: **Offset Printing Production**

Reference: Cogoli. *Photo Offset Fundamentals*

- Content:
1. Image creation — design; creative and news writing
 2. Production techniques
 3. Image generation — layout for newspaper or magazine or yearbook or booklet
 4. Image conversion — line and halftone — flat preparation — platemaking

Module eight: **Mechanical Drafting**

Reference: Davis and Skinner. *New Basic Drafting*

- Content:
1. Image creation — freehand drawing, lines, letters, symbols
 2. Image generation — instrument use and care — line standards — sketching skills — object presentation; orthographic, isometric, oblique
 3. Occupational information

Module nine: **Topographical Drafting**

Reference: Sloane and Montz. *Elements of Topographic Drawing*

- Content:
1. Data gathering — surveying
 2. Data interpretation — field notes; photogrammetry
 3. Image generation — map drawing
 4. Occupational information

Module ten: **Architectural Drafting**

Reference: Jensen. *Engineering Drawing and Design*

- Content:
1. Image creation — orthographic; oblique; sectional
 2. Building drawing — dimensioning, notes, specifications
 3. Occupational information

Module eleven: **Relief Printing**

Reference: Polk. *Basic Printing*

- Content:
1. Image creation — point system, type styles, symbols
 2. Image generation — composition and make-up — layout techniques
 3. Image conversion — flexography, photo-engraving
 4. Societal implications — effect of printed media
 5. Reproduction — press operation

Module twelve: **Printmaking Techniques**

Reference: Eisenberg and Kofka. *Silkscreen Printing*

- Content:
1. Image creation — design — thumb nail sketches
 2. Image generation — layout; T-shirt design; posters
 3. Image conversion — stencils; photo-mechanical conversion; image transfer
 4. Reproduction — tools; stretching silk; colors
 5. Finishing — cleaning; trimming; fixing dyes

E. GENERAL MODULES

Module one: **Research**

The module provides for individualizing the program to allow for special interests of students. The student should prepare a proposal of his research and have it approved by the teacher.

The proposal should contain:

- a) A statement of the problem
- b) The procedure to be followed in the research of the problem
- c) A list of the materials and lab facilities to be used
- d) A time line of activities

Module two: Developmental Module

The purpose of the Developmental Module is to provide a 25-hour block of time for the teacher to try out new content with his class. The content of the proposal or project should be discussed with the Associate Director of Curriculum for Industrial Education.

Module three: Production Science

The purpose of Production Science is to provide for a class project in setting up a company to produce a product or service.

OTHER INDUSTRIAL EDUCATION COURSES

DRAFTING 10

Drafting is a 3, 4 or 5-credit course which provides for exploratory experiences in drafting along with the development of some basic skills.

Content is to be selected from the outline given for Drafting 12 (see page 94) and should include the following general topics:

1. Reading working drawings and blueprints
2. Use of drafting equipment
3. Geometric constructions
4. Working drawings

DRAFTING 20

Drafting 20 is a 3, 4 or 5-credit course which expands on material presented in Drafting 10. Content should include the following:

1. General review.
2. Geometric construction.
3. Orthographic plate involving circles or arcs of circles.
4. Isometric plate involving circles or arcs of circles.
5. Surface development.
6. Cabinet drawing.
7. One-point perspective drawing.
8. Two-point perspective drawing.
9. Architectural drafting.
10. Aircraft drafting.

INDUSTRIAL EDUCATION 12, 22, 32 SERIES (CAREER DEVELOPMENT)

I. VISUAL COMMUNICATIONS

Field Objectives

The Visual Communications career field should provide an opportunity to:

1. Introduce students to the career opportunities and activities in the field of Visual Communications.
2. Enable the students to develop the knowledge, craftsmanship, skills and standard of performance necessary for job entry or entry into post-secondary institutions.
3. To help students develop an awareness of the principles and elements of design and apply these to the various fields of Visual Communications.

DRAFTING MAJOR

DRAFTING 12

References

No single text is prescribed. Listed are prime references only.

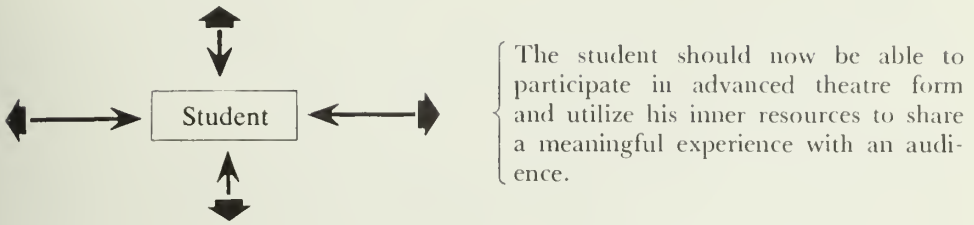
Davis and Skinner. *New Basic Drafting*. 1968.

Content

1. Drafting equipment
 - use and care
 - materials
2. Shape description
 - line language
 - object representation
3. Lettering
 - Gothic
 - styles
4. Geometry
 - geometric constructions
5. Reproduction of drawings
 - reproduction methods
6. Pictorial drawing
 - oblique
 - perspective
7. Sectional views
 - cutting plane
 - section lines
 - section types
8. Auxiliary views
9. Dimensioning
 - symbols
 - rules

Level 3

Advanced — continuing development of creative faculties plus theatre experience.



IN THE JUNIOR HIGH SCHOOL AND IN DRAMA 10 IT IS EXPECTED THAT THE DRAMA PROGRAM WILL DRAW FROM THE INITIAL AND INTERMEDIATE LEVELS.

INITIAL LEVEL

The uniqueness of each person is his individuality and in this — whether it be academic, technical, creative, or a combination of all three — he should not be compared with any other person. Drama is concerned with developing this uniqueness and helping each person to discover and to reach his own potential. A well-structured program which provides for creative experience on the part of the student, can develop within the student an awareness of the world, empathy with others, concentration, imagination, physical confidence, emotional control, expressive oral communication, self-discipline and tolerance. Drama has a unique contribution to make in the emotional and intuitive development of the student as the academic disciplines have in his intellectual development.

The objectives of the Initial Level are, therefore, **not** theatre oriented but concentrate on the development of the student's own resources.

Statement of Objectives

1. TO DEVELOP CONCENTRATION
2. TO DEVELOP SENSORY DISTINCTION
3. TO OBTAIN FREEDOM AND CONTROL IN PHYSICAL MOVEMENT
4. TO DEVELOP IMAGINATION
5. TO ESTABLISH FOUNDATIONS FOR FURTHER EXPLORATION IN CREATIVE EXPERIENCE
6. TO DEVELOP AN AWARENESS OF THE WORLD TODAY THROUGH AN UNDERSTANDING OF TODAY'S MEDIA AND THE RESPONSIBILITY OF MEDIA TO SOCIETY

It is intended that some or all of the units be used, each being developed to a greater or lesser extent, to provide a variety of experience. However, it is possible for a teacher to emphasize **one** of the units and develop it over a period of a semester or year, as these units are based on the premise that teachers teach best what they know and what they feel most confident in.

Units

The activities for each of the following units are based upon the six parts of the Statement of Objectives.

CREATIVE SPEECH — The dynamic and confident use of language to communicate original and interpretive thoughts and ideas, the emphasis being on individuality rather than on the acquisition of technical skills.

DRAMATIC LITERATURE AS A CREATIVE EXPERIENCE — The study of plays, radio scripts, television scripts, themes of films, etc., as a medium of communication of thoughts, feelings, ideas, **not as an academic analysis**; i.e., the play or film produced — the story told, the characters portrayed.

MEDIA AS A COMMUNICATIVE ART — A study through a variety of experiences of contemporary media (television, films, radio, newspapers, etc.) to develop an awareness and appreciation of the contribution of these changing forms in society.

IMPROVISATIONAL THEATRE — Improvisation means a situation, story, play without a script; such a situation, story, play can be told with or without words. The emphasis in this initial level is on movement improvisation rather than the extensive use of improvised dialogue, which is a more complex and advanced form of improvisation.

LINKING DRAMA WITH OTHER CREATIVE ARTS — The intention of this unit is to offer the drama teacher a variety of approaches through utilization of aspects of other creative arts, thus emphasizing the strong interaction amongst all the arts.

Recommended Teacher Reference:

Way, Brian. *Development Through Drama*. Longman Canada Ltd.

INTERMEDIATE LEVEL

Preliminary Statement

The Intermediate Level is an extension and further development of the objectives stated for the Initial Level. These objectives are:

1. To develop concentration
2. To develop sensory distinction
3. To obtain freedom and control in physical movement
4. To develop imagination
5. To establish foundations for further exploration in creative experience
6. To develop an awareness of the world today through an understanding of today's media and the responsibility of media to society.

At this level is added:

7. To channel individual creative resources into group activities and develop an awareness of dramatic form.

It is expected that the student at the Intermediate Level has had the benefit of a year or two at the Initial Level. Therefore, this program, or any part of it, will not be incorporated into Grades VII or VIII. It is also expected that the material covered in the Curriculum Guide to the Initial Level will be referred to regularly and used frequently at the Intermediate Level. It bears repeating that the total program presupposes that the dramatic experience is built on the very firm base of the student's development of his own resources. Therefore, at the teacher's discretion, a unit or units from the Initial Level may be adapted for use with "experienced" students, if the teacher believes that they are not properly prepared to benefit from the more sophisticated outlook of the Intermediate Level. It is also possible to use material from the Intermediate Level while continuing to use the individual-centred

method of the Initial Level. Teachers should not commit students to the group-centred approach until the students are ready for it.

The material in the Intermediate Level is presented through the means of three major units, each of which involves a progressive series of group projects designed to stimulate interest in various aspects of theatre art. The emphasis throughout is on an improvisational approach with each unit involving, to a greater or lesser degree, elements of the five units introduced into the Initial Level Guide.

Again, it is hoped that the teacher will make use of all three units during the course, although this is not mandatory. There **is** a shift in emphasis from individual work to group work intended to develop the student's ability to communicate, first with the group, and then with an audience. It is desirable, therefore, that, during the course of this level, much more of the student's work be presented for the class; that through class discussion the strengths and weaknesses of the work done is analyzed; that some exercises will be developed to a more finished state for viewing by other classes or small assemblies; that, in short, opportunities for a closed (i.e. classmates, other classes, invited friends and parents) audience situation exist.

Outline of Units

Three areas of emphasis, which are interrelated, each incorporating the other two, are suggested. Since the Intermediate Level is a bridge between the Initial Level and the Advanced Level, the projects included within each area indicate a progression in complexity and sophistication, culminating in limited theatre experience.

IMPROVISATIONAL THEATRE — The devising and developing of improvised movement and speech plays (with form, structure, discipline implied). This does not exclude the use of source material from literature both as stimulus and as framework; likewise, media provides both stimulus and enrichment to the improvised play.

For example:

- planned, rehearsed improvisation of situations, scenes and short plays
- planned, rehearsed dance dramas
- use of light, sets, projected and other scenery etc. to stimulate and or enhance improvisations and dance drama
- poetry (various kinds) to create a movement, sound and light collage.
- descriptive prose (various kinds) linked with movement, sound, light etc. to create a dramatic statement
- dramatisation of short stories
- play building from a theme, involving production as a culminating project of a short play for presentation in a closed situation.

LITERATURE — The written and spoken word would be the core source material of this unit; **improvisation** would be incorporated as part of the process of developing an awareness of the art of theatre; **media** would act as enrichment.

For example:

- words, phrases, quotations as basis for collage of words, movement
- poetry (various kinds) in conjunction with sound, light and movement for enrichment
- improvised dramatisation on scenes from short stories
- original script writing, stimulated by or adapted from source material
- scenes, one-act plays used as basis for improvisation
- use of improvisation as an approach to producing scenes and short plays
- improvisation of crowd scenes from plays, novels, etc.
- collage of poems, scenes, dramatisations, original writing to produce a short presentation as culminating project.

MEDIA — The exploration of media (film, projections, light) to create a piece of art implies the use of improvised movement and speech; the concept of statements, documentary type plays provide opportunities for using source material.

For example:

- exploration of light, sound, for effect to enhance improvised movement and speech plays
- use of poetry, prose, scenes as a basis for experimentation with light, sound
- exploration into film:
 - (1) as enhancement of improvisations
 - (2) as a creative art (N.B. **not** a study of Hollywood film techniques)
- exploration with video cameras using original scripted or improvised material
- use of puppets with original scripted or improvised material
- use of film, projectors, to enhance documentary drama
- short culminating project involving improvised dialogue, dance drama, original or source material (e.g. poems, scripts) as a basis for a collage of recorded sound, light, film, projected scenery as production enrichment.

ADVANCED LEVEL

Statement of Objectives

The Advanced Level is a further development and extension of the objectives of the two previous levels.

1. To encourage personal development through creative experience in:
 - (a) Concentration
 - (b) Sensory distinction
 - (c) Freedom and control in physical movement
 - (d) Imagination.
2. To motivate continued experience and training in various fields of Drama.
3. To develop an awareness of the world today through an understanding of today's media and the communication by means of these media.
4. To develop an awareness of the demands of theatre art form.

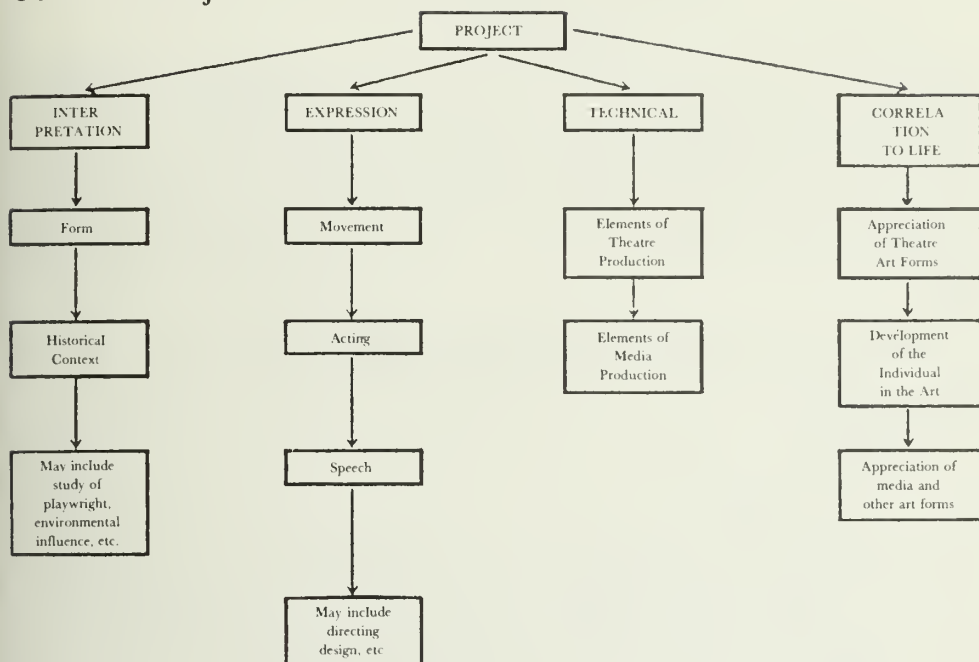
Preliminary Statement

It is assumed that the student at the Advanced Level has had a thorough grounding in the Initial and Intermediate Levels, and that, therefore, this level is intended for some form of extended dramatic experience culminating in presentation. It is expected that the teacher at the Advanced Level will refer to the aims of the Initial and Intermediate Levels, and will, by various exercises, constantly reinforce the skills developed through these two earlier levels.

At the advanced level the project has been used as the method. It is suggested that at least one major project should be undertaken as well as other minor projects. The level has been divided into major and minor projects because the full concept of dramatic form (as indicated in the chart) cannot be achieved as fully in the minor projects as in the major projects. If the form of one project precludes study in any area, this should be compensated for in the study of other projects.

The culmination of a project could be a presentation, as finished as the resources of the class and the school will permit. Whether this presentation should be to a closed or open audience must be governed by the decision of the teacher as to which type of presentation will most benefit the students involved. An open audience presentation is not mandatory.

Outline of Projects



MAJOR PROJECT — This is intended to be a study in depth including all the suggested areas of study and taking an extended period of time to complete; e.g. original presentation, scripted play, film, combination of various forms of presentation.

MINOR PROJECT — This is intended to be a study capable of culmination in a shorter period of time and not necessarily including all the suggested areas of study; e.g. puppetry, dramatic reading, radio play.

Alternative Program — Old Course

DRAMA 10

Introduction

The Drama 10 Course must serve two functions: it should provide a function for the two senior courses in dramatics, but it must also be a terminal course in itself since many students will not continue with the advanced courses. Many schools that offer Drama 10 will not be offering Drama 20 and 30. It would be advisable in such schools to include a brief history of the theatre in the Drama 10 course. Probably four to six lessons would be sufficient. (*The Stage and School* by Ommanney will provide the necessary material if other references are not available.)

Text

Barnes and Sutcliffe. *On Stage, Everyone*. Macmillan.

Course Content

1. Acting
 - (a) Characterization — Mental
 - (b) Characterization — Physical.
2. Design.
3. Costuming.
4. Stagecraft.
5. Lighting.
6. Interest and Application.
7. Evaluation.

DRAMA 20

Drama 20 is a course for those students who have shown particular interest in or aptitude for dramatics. This course should make greater demands upon the student than did Drama 10. It is hoped that the students in this class (possibly in conjunction with the students of Drama 30) will participate in the production of a full length play for public performance. Each student should have experience in production since production is the goal of drama study. Participation, however, need not be in an acting capacity. Wherever possible production and stagecraft tasks should be performed by the students.

Text

Barnes and Sutcliffe. *On Stage, Everyone*. Macmillan.

Course Content

1. Acting
 - (a) Characterization
 - (b) Techniques.
2. Production and Stagecraft
 - (a) The three-act play in relation to form, type and structure (plot, climax, theme, characterization)
 - (b) The demands of the three-act play on the various personnel involved
 - (c) The choosing of a three-act play for school production
 - (d) The analysis of the script for production and the making of the prompt script
 - (e) Stagecraft (Refer to *Play Production*, Nelms).
3. History
 - (a) Greek and Roman
 - (b) Medieval
 - (c) English Renaissance
 - (d) Restoration
 - (e) The Nineteenth Century.

DRAMA 30

Drama 30 is concerned primarily with giving individual help in any chosen field of theatre activity. Each student should be taken as far as possible within the limitations of time and his talents. The work of the course should be culminated in the public performance of a full length play (probably in conjunction with the Drama 30 students).

Text

Nelms. *Play Production*. Barnes and Noble. (Fitzhenry and Whiteside in Canada.)

Course Content

1. Acting.
2. Design.
3. Production.
4. History
 - (a) Ibsen — Realism and Fantasy
 - (b) Shavian Realism
 - (c) The Irish Movement
 - (d) The English Poetic Movement
 - (e) American Naturalism
 - (f) American Impressionism
 - (g) American Symbolism and Expression.

DRIVER EDUCATION 10

I. GUIDELINES

Credits and Reporting

Credits allotted for the course will be two (2). Enrollments and recommendations for credits should be reported by the school in the usual manner. The school should indicate the offering of the course on its Form A.

Course Description

The course will consist of:

- a. at least thirty (30) hours of classroom instruction,
- b. at least twelve (12) hours of observation of in-car practice, and
- c. at least eight (8) hours of in-car practice.

Instruction

Classroom instruction must be done by a certificated teacher.

In-car observation and practice may be conducted by a certificated teacher or a non-certificated individual but must comply with the Regulations under the Highway Traffic Act which are available through the Queen's Printer.

In order to conduct in-car observation and practice, a certificated teacher needs to:

- a. Hold a valid Alberta Class "1" or Class "2" or Class "4" Operator's License (or the old Class "A" Operator's License)
- b. Pass an examination given by the Motor Vehicle Branch covering
 - (1) Traffic laws
 - (2) Safe driving practices
 - (3) Operation of Motor Vehicles
 - (4) Knowledge of teaching methods, techniques or practices.

In order to conduct in-car observation and practice, a non-certificated individual (teacher aide) needs to:

- a. Hold a valid Alberta Class "1" or Class "2" or Class "4" Operator's License (or the old Class "A" Operator's License)
- b. Pass an examination given by the Motor Vehicle Branch covering
 - (1) Traffic laws
 - (2) Safe driving practices
 - (3) Operation of Motor Vehicles
 - (4) Knowledge of teaching methods, techniques or practices
- c. Take a driver training course of at least 30 hours acceptable to the Department of Education.

Classroom instruction, in-car observation and in-car practice should be carefully coordinated by school authorities who have the responsibility of recommending students for credits.

Student

The student involved in Driver Education 10 must:

- a. be at least fourteen (14) years of age,
- b. possess an Operator's License or a valid Learner's Permit issued by the Motor Vehicle Branch, Department of Highways.

- c. have written consent of parent or guardian, and
- d. be enrolled in an approved High School.

School

The school must secure School Board's approval in order to offer the course.

School Board

The School Board must:

- a. carry insurance coverage as follows:
"Passenger Capacity" — For injury or death of any one person as a result of any one accident in accordance with the provisions of the Highway Traffic Act,
- b. arrange for training cars, and
- c. finance the cost in any way deemed appropriate.

II. GENERAL OBJECTIVES

- 1. To develop in students attitudes of safety, courtesy, and responsibility in the operation of a motor vehicle.
- 2. To provide a practicum for the development of the skills of driving an automobile.
- 3. To familiarize students with the various laws, regulations and traffic control devices involved in driving.

III. TEXTUAL MATERIALS

Student Text and References:

- a. *Sportsmanlike Driving*. 2nd Canadian edition. Canadian Automobile Association (McGraw-Hill).
- b. *Practice Driving Guides*. For use with *Sportsmanlike Driving*.

IV. UNITS OF STUDY

- 1. The Driver and Society
- 2. The Driver and Specific Elements of Society
- 3. The Individual Driver
- 4. The Driver and the Car
- 5. Driving Techniques
- 6. Conditions and Driving Skills
- 7. Causes of Traffic Accidents and Economics Loss
- 8. New Approaches to Reduction of Traffic Accidents (30 hours)

V. OBSERVATION OF IN-CAR PRACTICE (12 hours)

VI. IN-CAR PRACTICE (8 hours)

ECONOMICS 30

Recommended Text:

Trimble. *Understanding The Canadian Economy*. Revised edition. Copp Clark Publishing Co.

Content of Course:

- Unit I.: Introduction to Economics
- Unit II.: Money and Banking
- Unit III.: National Accounts and Business Cycle
- Unit IV.: Public Finance
- Unit V.: Social Services
- Unit VI.: Distribution of Income
- Unit VII.: Demand and Supply
- Unit VIII.: The Business Unit
- Unit IX.: Policies of the Individual Firm
- Unit X.: International Trade
- Unit XI.: Personal Finance
- Unit XII.: Labour
- Unit XIII.: Agriculture
- Unit XIV.: Forms of Economic Organizations
- Unit XV.: Underdeveloped Countries

HEALTH AND PERSONAL DEVELOPMENT 10

Primary References

1. Chittiek. *Health For Canadians*. Macmillan Co. of Canada Ltd.
2. Geisel. *Personal Problems*.

Teachers' References

It is felt that a teacher offering the course at any or all grade levels should have access to the following references:

- (a) Sorenson and Malm. *Psychology For Living*. McGraw-Hill.
(If a copy of Averill's *Introductory Psychology* is available it will be useful as an alternative.)
- (b) Wheatley and Hallock. *Health Observation of School Children*.

Teachers will find one or more of the following references useful for background material in those sections of the course in Grades IX and X dealing with alcohol:

- (a) *Manual of Reference For Alcohol Education*.
Department of Education, Manitoba.
- (b) *Manual of Reference For Alcohol Education*.
Department of Education, British Columbia.
- (c) Hirsch. *Alcohol Education. A Guide Book For Teachers*.
- (d) McCarthy. *Teenagers And Alcohol*.

Course Content

Unit 1 — Success In High School

Orientation
Learning

Unit 2 — Our Physical Growth Into Adulthood

The Nature of the Body
Functions of the Body.

Unit 3 — Canada's Progress in Public Health

Why Public Health Services?
Improvement of World Health
The General Health Picture in Canada
Canada's National Health Program
Growing Recognition of the Alcohol Problem.

Unit 4 — Public Health In Alberta

Importance of Health Statistics
Public Health Measures in Alberta.

Unit 5 — Personality

The Meaning of Personality
Character
Personality Under Stress.

Unit 6 — Group Life

The Group's Responsibilities to the Individual
The Family Group
The Group and Leisure Time.

Unit 7 — Man's Marvellous Control System

The Nervous System and Its Work
Disorder in the Nervous System

Unit 8 — Preventing Accidents and Meeting Emergencies

Protection in Public Transportation
Safety in Recreation
Safety in Industry
Alcohol and Safety.

Unit 9 — Selecting a Vocation

The Importance of Career Planning
The Importance of Interests and Aptitudes in Choosing a Vocation
Personality and Its Relationship to Vocational Choice
Job Families and Job Opportunities
Making the Most of Opportunities to Secure Employment
Effective Procedures in Applying for a Job
Making Good on the Job.

HOME ECONOMICS

CLOTHING AND TEXTILES

CLOTHING AND TEXTILES 10

Objectives

1. To develop good judgement in selection, style and fabric.
2. To realize that selection and construction of garments express personality.
3. To realize that care of one's clothing is a responsibility.
4. To learn to construct garments of varying difficulty using a variety of textiles.

Text

Horn, Marilyn J. *Second Skin*. Thomas Nelson & Sons.

| | | |
|----------------|---|---|
| Concept A | — Significance of Clothing and Textiles to individuals in Society | |
| Subconcepts | — Interrelationship of clothing and culture | — Social and psychological aspects of clothing |
| Topic Emphasis | — “The Silent Message of Clothes” | — Basic need for gratification |
| | — “Function of Clothing” | — Self-concept |
| Subconcepts | — Clothing as a medium for artistic perception, expression and experience | — Clothing values |
| | | — Physiological aspect of clothing |
| Concept B | — Nature of Clothing and Textiles | |
| Subconcepts | — Textiles | — Garments |
| Topic Emphasis | — Natural fibers | — To construct three or more well made garments involving new learnings of increased difficulty of a variety of fabrics |
| | — Man-made and synthetic fibers | |
| | — Finishes | |
| | — Differences in yarns | |
| | — Construction of the woven fabrics affect performance | — Pattern alterations |
| | | — Draft or adapt a pattern for a portion of a garment |
| Concept C | — Acquisition and Use of Clothing and Textiles | |
| Subconcepts | — Consumer selection | |
| | — Consumer use and care | |
| | — Consumer responsibility | |

CLOTHING AND TEXTILES 20

Objectives

1. To develop and use principles of good management.
2. To be aware of the many decisions to be made wisely in buying fabrics and ready to wear garments.
3. To be aware of the interrelationship of clothing and culture.
4. To encourage pupils in the appreciation of good design which includes function and beauty.

Texts

Craig, Hazel. *Clothing: A Comprehensive Guide*. McClelland & Stewart Ltd.

Ramsay, Vera. *Create Something Beautiful*. Box 1046, Station A, Vancouver, B.C.

| | | |
|----------------|--|--|
| Concept A | — Significance of Clothing & Textiles to individuals in Society | |
| Subconcepts | — Interrelationship of clothing and culture — The social and psychological aspects of clothing — Medium for perception, artistic expression and experience — Economics — Physiological aspects | |
| Concept B | — Nature of Clothing and Textiles | |
| Subconcepts | — Textiles | — Garments |
| Topic Emphasis | — Synthetics | — To analyze elements of good fit |
| | — Characteristics of yarns and variations on texture, design and use | — To do pattern alterations |
| | — Specialty fibers for beauty | — To use drafting to develop or to adapt creative and original ideas |
| | — Complex weaves for variety | — To make three garments or more |
| | — Construction methods other than weaving which give variety | |
| Concept C | — Acquisition and Use of Clothing and Textiles | |
| Subconcepts | — Consumer selection — Consumer responsibility | |
| Topic Emphasis | — To plan a workable budget within the family income and plan systematic guidelines to meet needs — To recognize the responsibilities and obligations of consumers | |

CLOTHING AND TEXTILES 30

Objectives

1. An execution of custom dressmaking techniques.
2. To understand general standards of good fit.
3. To recognize the interrelationship of clothing and culture and the influence on fashion.
4. To analyze how clothing reflects the personality and values held by the wearer.
5. To recognize the knowledge needed by and responsibilities of an informed consumer.

Texts

Bane, Allyne. *Tailoring*. McGraw-Hill.

Broby-Johansen. *Body and Clothes*. Van Nostrand Reinhold Ltd.

or

Anspach, Karlyne. *The Why of Fashion*. Iowa State Press, Press Building, Ames, Iowa.

| | |
|-----------|--|
| Concept A | — Significance of Clothing and Textiles to Individuals in Society |
|-----------|--|

- Subconcepts
- Interrelationship of clothing and culture
 - Social and psychological aspects of clothing
 - Medium for perception, artistic expression and experience
 - Economics
 - Physiological

Concept B **Nature of Clothing and Textiles**

- Subconcepts
- Textiles
 - Garments
- Topic Emphasis
- “Generic Genius”
 - To observe and appreciate methods used by successful designers
 - To compare physical and chemical characteristics of textiles and clothing for performance and increased satisfaction from selection, use and care
 - Draft or adapt a pattern creatively
 - Tailor a garment
 - Construct two other projects commensurate with ability
 - Accessorize projects

Concept C **Acquisition and Use of Clothing and Textiles**

- Subconcepts
- Consumer selection
 - Consumer responsibility
- Topic Emphasis
- Factors involved in planning clothing budgets
 - Credit
 - types
 - availability
 - cost
 - advantages, disadvantages and abuse of credit buying
 - ability to calculate the cost of credit

FOOD SCIENCE

The students, with the guidance of the teacher, should develop generalizations for each section.

FOOD SCIENCE 10

Objectives

1. The development of the ability to select and prepare an adequate family diet with due attention to nutrition, standard methods, cost, time available, correct service, and necessary home management for smooth operation.
2. To recognize the effect of genetic and agriculture practices on food and to identify some of the physical and technological developments which are commonly used to alter the nature of food.

Text

Shank and Fitch, *Guide to Modern Meals*. McGraw-Hill.

Concept A **Significance of Food**

- Subconcepts
- As related to cultural and socio-economic influences
 - As related to nutrition
 - As related to physiological and psychological satisfactions
- Topic Emphasis
- Contributing factors effecting choice
 - Evaluate food as a socializer
 - Factors which underlie varying nutrient needs

| | |
|----------------|---|
| | — Planning, preparing and serving menus and evaluating the project |
| Concept B | — Nature of Food |
| Subconcepts | — Chemical and physical properties of food |
| | — Factors effecting change in properties of food |
| Topic Emphasis | — Effect of agriculture and technological developments on food |
| | — Review basic food preparation techniques |
| | — Select foods from the following categories and study effect of physical processes |
| | — protein |
| | — starch |
| | — sugar |
| | — fat |
| | — fruits |
| | — vegetables |
| | — Compare convenience foods |
| Concept C | — Provision of Food |
| Subconcepts | — Production |
| | — Consumer practices |
| | — Protection measures |
| | — Management of resources |
| Topic Emphasis | — Compare and contrast some of food industry's influence on food production and consumption |
| | — Extend ability to shop comparatively |
| | — Apply safety and sanitary measures in working with food |

FOOD SCIENCE 20

Objectives

1. To develop a desire to assume greater responsibility for the planning and serving of attractive meals and for social events.
2. To develop skill in cookery.
3. To increase knowledge and understanding by comparing nutrient content of regional and international diets.
4. To assess the nutrient needs of the body and to incorporate them in adequate meal patterns.
5. To recognize factors affecting the physical structure and availability of food.
6. To diagnose consumers' purchasing habits and the manner in which they affect the quality and price of food.

Text

McDermott, Trilling, Nicholas and Meiklejohn. *Food for Modern Living*. Canadian Edition. McClelland & Stewart Ltd.

| | |
|----------------|---|
| Concept A | — Significance of Food |
| Subconcepts | — As related to cultural and socio-economic influences |
| | — As related to nutrition |
| | — As related to physiological and psychological satisfaction |
| Topic Emphasis | — Interrelation of current food habits with change in supply and production |

| | |
|----------------|--|
| | <ul style="list-style-type: none"> — Comparison of nutrient content of various regional and international diets — Assessment of nutrient needs of the body and their incorporation into adequate meal patterns — How food habits are formed and changed |
| Concept B | — Nature of Food |
| Subconcepts | <ul style="list-style-type: none"> — Chemical and physical properties of food — Factors effecting changes in properties of food |
| Topic Emphasis | <ul style="list-style-type: none"> — Texture of foods — Use of a variety of leavening agents in practical work — Use of emulsions, e.g., mayonnaise — Spoilage and foods that are most susceptible — Micro-organisms and enzymes in food — Prepare foods using various food preparation techniques |
| Concept C | — Provision of Food |
| Subconcepts | <ul style="list-style-type: none"> — Production — Consumer practices — Protective measures — Management of resources |
| Topic Emphasis | <ul style="list-style-type: none"> — Social and technological changes that affect the supply of food to the consumer — New trends in processing |

FOOD SCIENCE 30

Objectives

1. To give a thorough working foundation as a basis for homemaking or for a career.
2. To become aware of the world problems related to food supply.
3. To be aware that nutrition encompasses intake, digestion, absorption and utilization of nutrients and the relationship to physical and mental well-being.
4. To analyze ways in which the consumer can bring about changes in the quality and supply of foods.

Text

Cote, Patricia. *People, Food and Science*. Ginn and Co.

| | |
|----------------|--|
| Concept A | — Significance of Food |
| Subconcepts | <ul style="list-style-type: none"> — As related to cultural and socio-economic influences — As related to nutrition — As related to physiological and psychological satisfaction |
| Topic Emphasis | <ul style="list-style-type: none"> — World problems related to food — Relation of politics to problem of food supply and distribution — Intake, digestion, absorption and utilization of nutrients — Interrelationship of good nutrition with physical and mental well-being |
| Concept B | — Nature of Food |
| Subconcepts | <ul style="list-style-type: none"> — Chemical and physical properties of food — Factors effecting change in properties of food |
| Topic Emphasis | <ul style="list-style-type: none"> — Interrelationship of the enrichment process and the nature of food and laws governing this — Chemical and physical properties of food and how changes can be made |

| | |
|----------------|---|
| | — Preparation of fruits and vegetables, starches, flours and flour mixtures, sugars, eggs, milk, meat, fish, poultry and fats |
| Concept C | — Provision of Food |
| Subconcepts | — Production |
| | — Consumer practices |
| | — Protective measures |
| | — Management of resources |
| Topic Emphasis | — Increases in variety of foods as a result of growth of technology and sociological trends |
| | — Consumer practices and their effect on supply, quality and variety of foods |
| | — Preparation of well planned and well served meals |

MODERN LIVING

MODERN LIVING 10

Objectives

1. To help students in becoming aware of self-growth which occurs gradually and continually in an ever widening environment.
2. To recognize the values and need for time, energy and money management.
3. To develop an awareness of specific needs that are satisfied by housing.

Text

Bratton, Esther. *Home Management Is*. Ginn & Co.

Housing

| | |
|----------------|--|
| Concept | — Influence of Housing on People |
| Subconcepts | — Physical and psychological |
| Topic Emphasis | — Social Characteristics of environment which affect the well-being of individuals |
| | — temperature, humidity, noise, odours, fumes, orderliness, aesthetic qualities |
| | — Interrelationship of family and the neighbourhood |
| | — Responsibilities for owners and tenants |
| Concept | — Processes in Providing Housing |
| Subconcepts | — Human |
| | — Environmental |
| Topic Emphasis | — Housing standards |
| | — Individual and family requirements |
| | — Reflection of neighbourhood and community on cultural values |
| | — Effect of zoning ordinances and building restrictions on the community |
| | — Design elements affecting arrangement of furniture |
| Concept | — Process in Providing Housing |
| Subconcept | — Designing |
| Topic Emphasis | — Review elements and principles of design |
| | — Stress importance of good structural and decorative design |
| | — Harmony in combining lines, colour, texture, space and form |

Management

| | | |
|----------------|---|--|
| Concept | — Managerial Processes | |
| Subconcept | Decision making | — Organization of activities |
| Topic Emphasis | Steps in decision making | — How to develop policies |
| | Family decision | — Homemaking, house-keeping and management |
| | | — Decision making |
| | | Planning, controlling, evaluating |
| Concept | — Effective Elements in Management | |
| Subconcepts | Resources and their utilization as related to the family life cycle | Values, goals, standards |
| Topic Emphasis | — Meaning of “life cycle” | — Meaning of each and relation to each other |
| | — Evaluate use of resources throughout life cycle | — Define conventional and flexible standards |
| | — Need for planning use with changing demands of life cycle | — Recognition of similar family values but different goals |

Human Development and the Family

| | | |
|----------------|---|--|
| Concept | — Universality of Individuals | |
| Subconcept | Transmission of culture | |
| Topic Emphasis | — Identify cultural patterns in North America today transmitted from past generations | |
| | — to analyze why some patterns persist | |
| | — to be aware of contribution of all generations to current cultural pattern | |
| Concept | — Development and Socialization of the Individual | |
| Subconcept | Maturity and marriage preparation | |
| Topic Emphasis | — The multi-faceted properties of maturity | |
| | — Definition of chronological, physical, moral, emotional, social, vocational and intellectual maturity | |
| | Contrast characteristics of mature and immature person | |
| | Consider various stages of maturity | |
| | — young child | |
| | — adolescent | |
| | — adult | |
| | — Process of development of self-concept of a mature person | |
| | — To recognize some factors which contribute to a lasting marriage | |
| | — Need for qualities of warmth, acceptance, flexibility in preparation for marriage | |

MODERN LIVING 20

Objectives

1. To help students become aware of values and interpersonal relationships in the development of the individual.
2. To help develop an understanding of the family life cycle.

3. To recognize that management of time, effort and money contributes to well being.
4. To assist students in the realization that rational decisions in the selection of a home and furnishings are dependent on being informed.

Text

Landis, Paul H. *Your Marriage and Family Living*. McGraw Hill.

Housing

- | | |
|----------------|--|
| Concept | — Processes in Providing Housing |
| Subconcepts | — Designing — Selecting — Furnishing and equipping — Managing — Maintaining |
| Topic Emphasis | — Function — an architectural theory — an integration of purpose and form with beauty as an integral part — Creating an interior that meets physical and aesthetic needs — Storage selection related to use and care |

Management

- | | |
|------------|--|
| Concept | — Effective Elements in Management |
| Subconcept | — Resources and their utilization as related to time, energy, money |
| Emphasis | — Time <ul style="list-style-type: none"> — time related to age and culture — time related to the individual — management of time |
| | Energy <ul style="list-style-type: none"> — management of energy — energy has physical and psychological content — forms of fatigue |
| | Money <ul style="list-style-type: none"> — meaning to the individual — types of credit costs — saving plans — bank, insurance |

Human Development and the Family

- | | |
|----------------|--|
| Concept | — Universality of Individuals |
| Subconcept | — Family functions <ul style="list-style-type: none"> — child bearing — child rearing — regulation of behaviour — economic support |
| Topic Emphasis | — Economic, social, emotional and interactional influences of children in a family <ul style="list-style-type: none"> — current attitudes — preparation for parenthood — legal responsibilities — care of children |
| Concept | — Development and Socialization of the Individual |
| Subconcepts | — Issues in development and socialization of the individual |

| | |
|----------------|--|
| | — current role changes for men and women |
| | — the population crisis |
| Topic Emphasis | — The meaning of a role and how people learn a particular role |
| | — Variety of definitions for masculinity and femininity |
| | — Changes in relationship in current society |
| | — Function of family throughout history |
| | — Discuss population dynamics and socio-economic reasons for controlling family size |
| Concept | — Challenge and Creative Possibilities of Change |
| Subconcept | — The changing family |
| Topic Emphasis | — Elements contributing to changed functions of the family |
| | — Resistance of human beings to change |
| | — Processes of cultural change |
| | — Contrast rapid social change with slower change |
| | — Strains on families caused by rapid social change |
| | — Various methods for coping with change |

MODERN LIVING 30

Objectives

1. To help students prepare for their future.
2. To help students understand the significance of good judgement and the power of critical and creative thought as applied to establishing a home and making it comfortable and adapting it to family requirements.
3. To explore the contemporary dual roles of homemaker-provider for both men and women.
4. To help students promote in a positive way the welfare and security of the individual through the home and a successful family life.

Text

Craig, Hazel. *Homes With Character*. D. C. Heath.

Housing

| | |
|----------------|--|
| Concept | — Factors Influencing the Form and Use of Housing |
| Subconcepts | — Human |
| | — Environmental |
| Topic Emphasis | — Factors which influence choice |
| | — Needs of disabled people |
| | — Safety devices for children, the elderly, the handicapped, etc. |
| | — Values |
| | — Environmental factors that influence the form and use of housing |
| Concept | — Processes in Providing Housing |
| Subconcepts | — Designing |
| | — life cycle |
| | — landscaping |
| | — lighting |
| | — Selecting |
| | — Building |
| | — Financing |
| | — Furnishing |

- Managing
- Maintaining
- Topic Emphasis
 - Changing of needs with
 - changes in life cycle
 - effect of appearance on house value
 - types of housing on the market
 - advantages and disadvantages in owning vs renting
 - sources of technical and legal information and advice
 - arrangement of furniture for care, safety, use
 - contrast heating methods as to cost and practicality
 - new methods and materials which affect construction, cost, care
 - housing as related to family finance
 - analyze variations in kind and cost of credit
 - how family members can contribute to improving home and thus extend family income

Management

- | | | |
|----------------|--|--|
| Concept | — Environmental Influences | |
| Subconcepts | — Societal | — Economic |
| Topic Emphasis | — How changes affect use of resources <ul style="list-style-type: none"> — rural to urban — integration of cultures — pressure of standards of living — mass media advertising | — Economic influences <ul style="list-style-type: none"> — How family economy is affected by the larger economy — Total income <ul style="list-style-type: none"> — money and non-money (goods and services) — Cost of living — Family budget — Psychic satisfaction — Interaction between social and economic influence |
| | — Roles of people in relation to expectation and pressure, e.g., daughter or son, sister or brother, teenager, employer, friend, confidant, consumer | |

Human Development and the Family

- | | |
|----------------|---|
| Concept | — Universality of Individuals |
| Subconcept | — Patterns of individual human development |
| Topic Emphasis | — Universal features of human development <ul style="list-style-type: none"> — Effect of environment — Processes involved in human development — Stages of pre-natal development and processes of birth — Life cycle |
| Concept | — Development and Socialization of the Individual |
| Subconcept | — Human adaptability |
| Topic Emphasis | — Reciprocal interaction between human development and the environment <ul style="list-style-type: none"> — Factors conducive to emotional maturity in a child — Versatility of human beings to adapt to physical, mental and social handicaps or problems — Creativity and adaptability in meeting everyday relations — Recognition that all people are capable of creative response |

INDUSTRIAL EDUCATION

Introduction

Industrial Education is a program consisting of courses which provide a continuum of experiences, starting with exploratory activities in the junior high school and expanding in the high school to the development of skills related to career fields. This development of the student's skills is planned for through courses in industrial arts and vocational education culminating in on-the-job work experience, or entry into a job or post-high school institution for further education.

The program consists of courses ranging from those designed for an exploration of the technologies and trade areas to units of practical preparation for a career. In the process the courses develop the student's knowledge of himself, his talents and his skills.

For information on sequencing and course description, refer to the "Handbook In Industrial Education for Guidance to Teachers, Counsellors and Administrators".

Programs

There are two parts to the Industrial Education program. The first part consists of the I.E. 10, 20, 30 series of courses and is designed for career orientation. These courses were developed primarily for students in laboratories that utilize the multiple activity approach as found in most smaller schools, but they can be taught in unit shops as well.

The second part consists of the I.E. 12, 22, 32 series of courses and is intended for career development. The courses are planned for use in schools where facilities are available to teach specific occupational areas.

Students may progress from the I.E. 10, 20, 30 series to the 22 level courses upon meeting specified basic prerequisites or upon recommendation of their principal.

Both sections of the program focus on seven career fields. These are:

- Visual Communications
- Mechanics
- Construction and Fabrication
- Electricity-Electronics
- Personal Services
- Performing Arts
- Horticulture

The I.E. 10, 20, 30 courses consist of a number of one credit modules related to the career fields while the I.E. 12, 22, 32 courses consist of a number of five credit modules of specific occupational content. Completion of seven five credit modules qualifies the student for recognition by the Apprenticeship Branch for credit towards a journeyman's certificate.

It is left to the administrators of the school to offer the courses or combination of courses best suited to the needs and interests of the students and the financial resources of the district.

Courses offered at the 22 and 32 level have to meet special criteria for staff and facilities. The Industrial Education Consultant must authorize these in order to qualify the students for special grants.

Objectives

The general objectives of Industrial Education complement the aims and objectives of the secondary school. The objectives of Industrial Education are:

1. to provide students with the curriculum content designed to develop funda-

mental tool and procedural skills which help prepare them to enter a family of occupations.

2. to provide students with courses that serve as vehicles which help them relate their academic knowledge to vocational competencies.
3. to provide students with courses that serve as vehicles which help them relate their academic knowledge to vocational competencies.
4. to provide students the opportunity to develop basic competencies, both academically and in work skills to enter either a job or a post-high school institution for further education.
5. to provide students with the environment whereby they may develop sound attitudes, acceptable work habits, and achieve a feeling of accomplishment.

INDUSTRIAL EDUCATION 10, 20, 30 SERIES (NEW PROGRAM)

Introduction

The Industrial Education 10, 20, 30 courses consist of content selected from over fifty one credit modules.

The courses may be offered in an A and B series with each series consisting of 4 or 5 modules selected from the fifty. Consideration must be given for prerequisite modules.

Each module requires a minimum of 25 hours of instruction time. The modules contain content related to the career fields of:

Visual Communications
Mechanics
Construction and Fabrication
Electricity-Electronics

Specific programming is left to local planners. Modules may be clustered to relate to career fields or they may represent a number of areas.

SAFETY NOTE

Every industrial education laboratory must have an effective safety program. The teacher must be vigilant to provide adequate and continuous supervision so that safe practices are followed in all laboratory activities.

INDUSTRIAL EDUCATION 10(a)-(b), 20(a)-(b), 30(a)-(b)

The Industrial Education courses consist of content selected from fifty one credit modules. Each course requires the completion of a minimum of four modules to qualify for 4 - 5 credits. Some flexibility is allowed in order to accommodate most situations. By increasing the hours on a 25 credit module the requirement of 125 hours for a five credit course can be met with four modules. Students may take both the A and B selections of the grade level course or take the A's only.

The modules from which selections are to be made are as follows:

- A. Electricity-Electronics
(Each module may range from a minimum of 25 hours to a maximum of 33 hours.)
1. Electricity (one unit)
 2. Electronics (one unit)
 3. Power Supplies (one unit)
 4. Oscillators (one unit)

5. Audio (one unit)
6. Trouble Shooting (one unit)
7. Radio (one unit)
8. Television (one unit)
9. Logic circuits (one unit)
10. Computer (one unit)
11. Electric wiring (one unit)
12. Assembly and Layout (one unit)

B. Materials

1. General Woods (one unit)
2. Building Construction (two units)
3. Cabinet (two units)
4. General Metals (one unit)
5. Sheet Metal (one unit)
6. Machine Metal (one unit)
7. Hot Metals (three units)
8. Plastics (two units)
9. Earths (two units)
10. Textiles (one unit)
11. Foods (one unit)

C. Power Technology

1. Small Engine Overhaul (one unit)
2. Electro Mechanical Controls and Circuit Trouble Shooting (one unit)
3. Electrical Systems (one unit)
4. Automobile Care (one unit)
5. Appliance Repairs and Trouble Shooting (one unit)
6. Automobile Tune-up (one unit)
7. Mechanical Systems (one unit)
8. Non-Conventional Power Sources (one unit)
9. Conventional Heat Engines (one unit)
10. Hydraulics and Fluidics (one unit)
11. Pneumatics and Fluidics (one unit)
12. Small Engine Tune-up and Trouble Shooting (one unit)

D. Visual Communications

1. Principles of Offset Lithography (one unit)
2. Line Photography (one unit)
3. Black and White Photography (one unit)
4. Color Photography (one unit)
5. Screened Photography (one unit)
6. Layout and Design (one unit)
7. Offset and Printing Production (one unit)
8. Mechanical Drafting (one unit)
9. Topographical Drafting (one unit)
10. Architectural Drafting (one unit)
11. Relief Printing (one unit)
12. Print Making Techniques (one unit)

Three additional modules of a general nature are available and may be taken once in connection with a student's total program. These are:

1. Research module: A student may engage in an in-depth study of a problem related to any of the career fields.
2. Developmental module: The teacher with his class may develop new content. An outline of intentions should be discussed with the Associate Director of Curriculum for Industrial Education.

3. Production Science module.

The content for the above modules can be found in the Curriculum Guide for Industrial Education 10, 20, 30.

INDUSTRIAL ARTS (OLD PROGRAM)

Note: This program will be phased out, effective September, 1976.

General Objectives

1. To provide exploratory experiences in various technologies prevalent in a productive society.
2. To provide a synthesizing environment for students to apply their academic knowledge in the solution of practical problems.
3. To provide a supplementary guidance function by introducing the students to the multiplicity and interrelationship of educational and occupational opportunities.
4. To provide an environment which stimulates the individuals to discover and develop their interests and talents.
5. To develop attitudes of safety with a respect for safe working habits and practices in the use of tools, equipment and materials.
6. To develop attitudes of personal and social responsibility.
7. To have students develop an organized conceptual frame of reference interrelating the knowledge of the various technologies prevalent in a productive society.
8. To develop an understanding of man's changing role in our industrialized society.

Safety

Every industrial arts laboratory must have an effective safety program. The teacher must be vigilant to provide adequate and continuous supervision so that safe practices are followed in all laboratory activities.

PROGRAM I GENERAL TECHNOLOGY 10, 20, 30

The General Technology program consists of a series of three courses: General Technology 10 (4 - 5 credits), General Technology 20 (4 - 5 credits) and General Technology 30 (5 credits). Each course requires the completion of two to four units of study selected from the units listed. Over the three courses A STUDENT may elect to develop a major unit of study by exploring it for up to half time. The other units should be selected from at least three of the five different clusters: Materials, Electronics, Power, Graphics and Special Units.

Following are the clusters and the units in each

- Basic Electricity
- Basic Electronics
- Basic Computer
- Woods
- Metals
- Earths
- Plastics
- Textiles
- Drafting
- Photography

- Printing
- Power Sources
- Fluid Transmission
- Mechanical Transmission
- Research
- Production Science
- Hot Metals
- Building Construction
- Food Science

PROGRAM II

INDUSTRIAL ARTS CLUSTER 10, 20, 30 PROGRAM

- | | |
|---------------------------|--|
| A. Materials | <ul style="list-style-type: none"> — Woods — Metals — Plastics — Earths — Textiles |
| B. Electronics | <ul style="list-style-type: none"> — Basic Electricity — Basic Electronics — Electronic Systems — Computer |
| C. Graphic Communications | <ul style="list-style-type: none"> — Drafting — Photography — Printing |
| D. Power Mechanics | <ul style="list-style-type: none"> — Power Sources — Fluid Transmission — Mechanical Transmission |

INDUSTRIAL ARTS MATERIALS 10, 20, 30

Introduction

The Materials cluster introduces students to a number of processes used to shape and form materials to man's uses. The study includes an introduction to the equipment and machines used in the materials industry so that principles of operation and safe control are understood. Materials testing is integrated in this study so that students understand the need for careful selection of materials for a particular use.

Specific Objectives

1. To provide an opportunity for students to gain basic concepts on how materials are shaped, formed and fastened.
2. To give students an opportunity to learn to use and handle equipment correctly and safely.
3. To introduce students to the many occupational areas related to materials and their fabrication.

The course consists of four units each year in wood, metals, plastics and one craft material chosen from ceramics, leather, lapidary, textiles. Each unit is developed under the following headings:

- 1) Layout and Design
- 2) Sources and Applications
- 3) Hand Processes
- 4) Machine Processes
- 5) Fasteners
- 6) Finishing
- 7) Occupational Information.

MATERIALS 10

I. Wood

- Layout
- Identification and use, testing
- Hand tools and processes — planing, chiseling, boring, sawing
- Machine processes — surfacing, turning, sawing
- Fastening — nails, screws, glue
- Finishing — sealer, filler, oil, varnish, wax
- Occupational information

II. Metal

- Layout in metal — tape, ink
- Identification and source — manufacture of steel, testing
- Hand processes — shaping, sawing, filing, drilling
- Machine processes — grinding, drilling
- Fastening — rivetting, soldering, screws and bolts
- Finishing — paint
- Occupational information

III. Plastics

- Design in acrylics, butyrates, vinyls
- Cutting, filing, machining processes
- Heat forming
- Fastening with cements, solvents, mechanical means
- Finishing processes — coloring, buffing, polishing
- Industrial uses and occupational opportunities

IV. Craft Materials

Only one of the following crafts may be selected each year of the program:

(1) Leather

- Selection, uses and design
- Leather industries of Alberta
- Processes — cutting, carving, creasing, lacing
- Fasteners — sewing, rivetting, glues, snaps

(2) Ceramics

- Source and testing of materials
- Industrial applications
- Shaping and forming ceramics products — slab, coil, wheel, slip, molding
- Firing
- Finishing — glazes
- Occupational information

(3) Lapidary

- Identification and sources of materials
- Processes of cutting, grinding, lapping, tumbling, faceting, polishing
- Use of fasteners

(4) Art Metal

- Design principles
- Materials
- Processes — cutting, filing, soldering, drilling, annealing, pickling, forming, twisting, beating, spinning
- Finishing — planishing, fleeing, chasing, stamping, stipling, embossing

MATERIALS 20

I. Wood

- Blueprint reading, planning procedure and bills of materials
- Imported woods — use and characteristics
- Tool processes — dados, grooves, chamfers, rabbets, turning, routing
- Bending, laminating, veneering and testing wood materials
- Fastening — joints, glues and adhesives
- Finishing — lacquers, varnish, Swedish oil, polishing
- Wood industries and occupational opportunities

II. Metal

- Metal symbols
- Metallurgy — hardening, heat treatment, annealing, tempering
- Machine processes — turning, shaping
- Finishing with — spray, industrial methods
- Occupational opportunities

III. Plastics

- Design and symbols
- Processes — heat forming, laminating, blow forming, vacuum forming
- Tests and experiments in strengths and shaping of plastics

IV. One craft other than that chosen in Materials 10

MATERIALS 30

I. Wood

- Reading architectural drawings
- Organizing of companies (construction)
- Selection of building sites
- Material selection and testing
- Construction planning
- Basic design of frame building
- Construction processes — concrete form design, framing, walls and rafters, roofing, finish carpentry
- Tool processes — sawing, nailing, conditioning tools
- Occupational information

II. Metal

- Design for mass production
- Material testing — brittleness, ductility, toughness, malleability, shear torsion
- Processes — case hardening, work hardening
- Production processes — copper, bauxite, alloys, aluminum
- Machine processes — turning, knurling, filing, polishing, tapering, milling a flat surface

III. Plastics

- Resins, fiberglass
- Material processes — embedding, overlay, laminating, molding, fiber-glass repair
- Machine processes — carving, rotational molding, slush mold, injection, extrusion, compression molding, transfer molding
- Finishing methods
- Industrial application

IV. Craft other than taken in 10 or 20

INDUSTRIAL ARTS ELECTRONICS 10, 20, 30

Introduction

The approach to teaching electronics in the industrial arts courses is to develop basic concepts of:

- first, the total system, e.g., record player, superhet, etc.
- second, the units that comprise the system, e.g., power supply, amplifier, oscillator
- third, the components that make up the units, e.g., resistors, capacitors, inductors, etc.
- fourth, the physical laws that are operative in the function of the whole system.

Specific Objectives

1. To teach the correct use of common and special instruments and the principles involved.
2. To familiarize students with some of the basic electronic circuits and their applications.
3. To familiarize students with the basic principles and fundamentals of radio and television communications and computer systems.

ELECTRONICS 10

Unit I. — Basic Electricity-Electronics

1. Instrument use: V.O.M., V.T.V.M., Oscilloscope, Ammeter, Voltmeter, Signal Generator
2. Measurement of: current, voltage, resistance
3. Study minimum of two systems from
 - Record Player
 - T.R.F.
 - Superheterodyne
 - Computer
 - Input — classification, A.F. or R.F., wave form, strength
 - Output — classification, wave form, strength
 - Identification of units within system

Unit II. — Systems Study

1. Study three systems not studied above from: record player, T.R.F., superheterodyne, computer, transmitter, transistor radio, video, F.M., electronic control. Each to be studied as suggested in (4) above (Unit I)
2. Study basic principles of the following units:
 - Power Supply
 - Amplifier
 - Oscillator

Unit III. — Units of a System

1. Assemble, test and compare units:
 - (a) Power supplies — half and full wave
 - (b) Amplifier — audio frequency
 - voltage and power
 - radio frequency
 - (c) Oscillator — Armstrong
 - Hartley

Unit IV. — Components of a System

1. Study components such as: resistors, capacitors, inductors, transformers, tubes, transistors for (a) characteristics
(b) construction and production
(c) values

ELECTRONICS 20

Unit I. — Systems Review

1. Review systems studied in Electronics 10 and study two additional systems
2. Review use of instruments to measure: voltage, resistance and current

Unit II. and III. — Units of a System

1. Study the power supply, amplifier and oscillator under the following headings: — types
— function and analysis
— principles of operation
— applications

Unit IV. — Component Study

1. Study the following:
— Ohm's law as it applies to D.C. and A.C. circuits
— Capacitance in A.C. and D.C. circuits
— Inductance in A.C. and D.C. circuits
2. Relate physical and mathematical principles to the components: resistors, capacitors, inductors, transformers, tubes, transistors

ELECTRONICS 30

Unit I. and II. — Computer Systems

Equivalent of one half year to be spent in the study of computer systems.

Unit III. and IV. — Special Study

Students may spend one half year in research and development of special interest area of:

- Industrial controls
- F.M.
- Video
- Computer

INDUSTRIAL ARTS GRAPHIC COMMUNICATIONS 10, 20, 30

Introduction

In Graphic Communications a student will learn about the basic principles of Drafting, Printing, Duplicating and Photography and the interrelationship of the technologies within this cluster.

Specific Objectives

1. To provide an opportunity for students to learn about the basic materials and processes used in the graphics industry.
2. To give students practice in the approved methods and procedures required for drafting, printing, photography and duplicating processes.
3. To acquaint students with the opportunities in the field of graphic communications.

DRAFTING

Objectives

1. Provide exploratory experiences.
2. Develop basic skills.

DRAFTING 10

1. Reading working drawings and blueprints.
2. Use of drafting equipment.
3. Geometric constructions.
4. Working drawings — kinds

DRAFTING 20

1. General review.
2. Geometric construction.
3. Orthographic plate involving circles or arcs of circles.
4. Isometric plate involving circles or arcs of circles.
5. Surface development.
6. Cabinet drawing.
7. One-point perspective drawing.
8. Two-point perspective drawing.
9. Architectural drafting.
10. Aircraft drafting.

GRAPHIC COMMUNICATIONS' 10

Unit I. — Drafting

1. Mechanical Processes — instrument use
2. Drawing Methods (introduction to)
 - Freehand drawing
 - Orthographic
 - Isometric
 - Pictorial
 - Sectional
 - Machine
 - Electrical
 - Sheet Metal
3. Material Processes
 - Tracing
 - Printing a Drawing
 - Copying Machines
4. Relationship to Industry

Unit II. — Photography

1. Composition and Design
 - Principles of composition
 - Lighting
 - Outdoor photography
2. Materials
 - Types of film
 - Papers
3. Cameras
 - Kinds
 - Parts
 - Functions
 - Use of light meter
 - Electronic flash
4. Material Processes
 - (a) Contact Printing
 - Chemicals
 - Paper
 - Procedures
 - (b) Enlarging
 - Types
 - Functions
 - Procedure
5. Relationship to Industry
 - Career opportunities

Unit III. — Printing and Reproducing Processes

1. Composition and Design
 - Basic type families
 - Terms used
 - Making a layout
2. Materials
 - Paper used
 - Inks
3. Mechanical Processes
 - Typesetting
 - Platen Press
 - Sign Press

Unit IV. — Printing (Continued)

1. Mechanical Processes
 - Kinds of printing, letterpress, intaglio, lithography, flat bed press, cylinder press, rotary press
2. Material Processes
 - Stencil preparation
 - Offset principles
 - Types of masters and their preparation; direct image, transfer image, photographic
 - Principles of copying machines

GRAPHIC COMMUNICATIONS 20

Unit I. — Drafting

1. Mechanical Processes
 - Function and use of drafting machine
2. Projection Methods
 - Orthographic — dimensioning
 - Isometric — from orthographic
 - Pictorial — parallel perspective
 - Sheet Metal — development of curved surfaces
 - Sectional — conventional lines and symbols
 - Architectural — basic principles
 - Machine — threads and other forming methods
 - symbols

Unit II. — Photography

1. Composition criteria for:
 - landscapes
 - portraits
 - still life
 - animals
 - plants
2. Materials
 - Film characteristics
3. Mechanical and Material Processes
 - Properties of light
 - Lenses
 - f-stop
 - Types of cameras
 - Enlargers and enlarging
 - Filters and their use
 - Camera use and practice

Unit III. and IV. — Printing and Reproducing Processes

1. Composition and Design
 - Preparation of art work for lithography
2. Material Processes
 - Preparation of photographic masters
 - Production of transparencies
 - Silk screen printing

GRAPHIC COMMUNICATIONS 30

Unit I. — Drafting

1. Architectural drawing
2. Machine drawing
3. Topographical
4. Pictorial
5. Tracing and printing

Unit II. — Photography

1. Applications of photography to: commercial, illustration, portraiture, press, police, industrial, nature
 - Roentgenography
 - Infra-Red
 - Process camera work

2. Darkroom controls and techniques
3. Photography as related to the offset press
4. Print finishing
5. Color photography
6. Motion picture photography

Unit III. — Printing

1. Practical application of offset work in industry
 - manufacturing
 - buying
 - distributing
 - administration and accounting
2. Running an offset press

Unit IV. — Printing (Continued)

1. Producing a complete printed project
 - set up the management and labor organizations to produce a paper.

INDUSTRIAL ARTS POWER MECHANICS 10, 20, 30

Introduction

Power mechanics is the study of the sources and transmission of power. Through the reading and activity the student will engage in as he progresses through these units of study, he will gain a concept of the meaning of work, energy and power.

Specific Objectives

1. To help the student understand and relate the many basic laws and principles of science as they apply to power technology.
2. To familiarize the student with the construction and requirements of machines which convert energy to useful work.
3. To develop problem solving skills related to machines and their operations.
4. To help students understand the use, care and control of the power machine.

POWER MECHANICS 10

Unit I. — Power Sources

1. Concepts of power
 - Definition of work, energy, horsepower, torque
 - Introduction to measurement of rotational power
2. Principles of operation

Two systems should be chosen for study from the ones listed below:

 - (1) 4-stroke cycle gas
 - (2) 2-stroke cycle gas
 - (3) 4-stroke cycle diesel
 - (4) 2-stroke cycle diesel
 - (5) Wankel rotary engine

Each system to be analyzed and studied to isolate the principles related to:

- (a) carburetion
- (b) ignition
- (c) lubrication
- (d) cooling

3. Control and analysis

- (a) Factors of power output
 - brake mean effective pressure
 - displacement of cylinders
 - piston speed
- (b) Law of definite proportions
- (c) Limitations of piston and crankshaft type engines

4. Practical applications of power sources

Unit II. — Power Sources

1. Study of electric motors and three other sources of power not included in Unit I selected from the following:

- turbines
- jets
- rockets
- nuclear
- steam

2. The study of each system should consider

- (a) Concept of power
- (b) Principles of operation
 - carburetion
 - ignition
 - lubrication
 - cooling
- (c) Control and analysis
- (d) Applications

Unit III. — Hydraulics and Pneumatics

1. Basic principles

- Pascal's Law
- Problems in area
- Concept of pressure
- Principles of flow and properties of fluids

2. Basic hydraulic circuitry

- Single acting cylinder
- Double acting cylinder
- Use of valves

3. Principles of pneumatic circuits

4. Applications of pneumatics

5. Fluidics

Unit IV. — Mechanical Transmission

1. Principles of mechanics

- Mechanical advantage
- Directional changes in power transmission

- Efficiency of transmission
- Linear measurement of power
- Calculation of torque and power
- 2. Transmission of power through:
 - belts
 - chain devices
 - gears and shafts
- 3. Clutching devices
 - dog
 - sliding gear
 - centrifugal
 - cone
 - single plate
 - multiple discs
- 4. Principles of power transmission through: shafts, cables, cams, rods, air screws, water screws, axles, wedges.

POWER MECHANICS 20

Unit I. — Power Sources

1. Study two systems from the following not studied in Power Mechanics 10:
 - (a) 4-stroke cycle gas
 - (b) 2-stroke cycle gas
 - (c) 4-stroke cycle diesel
 - (d) 2-stroke cycle diesel
 - (e) Wankel rotary engine
2. Study each system as outlined in Unit I, Power Mechanics 10.

Unit II. — Electric Power

1. Overview of the principles of electric motors and generators, A.C. and D.C.
2. Units and components of the generator and their functions — field, armature, frame, brushes
3. Principles of magnetic forces
4. Principles and characteristics of different types of motors
5. Fuel cell — operating principles, parts, merits
6. Chemical cells — primary and secondary cells
 - limitations
7. Thermocouples
8. Solar cells — principles of operation

Unit III. — Hydraulic and Pneumatics

1. Bernoulli's Theorem
2. Types of valves
3. Sealing devices
4. Accumulators
5. Motors
6. Pumps
7. Methods of flow control
8. Laws of gases

Unit IV. — Electrical Transmission

1. Concepts of the interrelationships between mechanical and electrical power
2. Transformer action

3. Power loss in lines
4. Principles and operation of: thermostats, humidistats, barostats, and hydrostats

POWER MECHANICS 30

Unit I. and II. — Power Sources

1. Students to make a study in depth of two power source systems of their choice.

Unit III. and IV. — Power Transmission

2. Students to make a study in depth of two transmission systems chosen from the following:
 - Hydraulics
 - Pneumatics
 - Electrical transmission
 - Mechanical

INDUSTRIAL EDUCATION 12, 22, 32 SERIES (CAREER DEVELOPMENT)

I. VISUAL COMMUNICATIONS

Field Objectives

The Visual Communications career field should provide an opportunity to:

1. Introduce students to the career opportunities and activities in the field of Visual Communications.
2. Enable the students to develop the knowledge, craftsmanship, skills and standard of performance necessary for job entry or entry into post-secondary institutions.
3. To help students develop an awareness of the principles and elements of design and apply these to the various fields of Visual Communications.

DRAFTING MAJOR

DRAFTING 12

References

No single text is prescribed. Listed are prime references only.

Davis and Skinner. *New Basic Drafting*. 1968.

Content

1. Drafting equipment
 - use and care
 - materials
2. Shape description
 - line language
 - object representation
3. Lettering
 - Gothic
 - styles
4. Geometry
 - geometric constructions
5. Reproduction of drawings
 - reproduction methods
6. Pictorial drawing
 - oblique
 - perspective
7. Sectional views
 - cutting plane
 - section lines
 - section types
8. Auxiliary views
9. Dimensioning
 - symbols
 - rules

10. Detail drawing
 - complete description
11. Occupational information

DRAFTING 22A (MACHINE DRAWING)

References

- Davis and Skinner. *New Basic Drafting*. 1968.
- Jensen. *Engineering Drawing and Design*. 1968.

Content

1. Introduction to drawing
 - shape description
 - size description
2. Fabrication and construction processes
 - forming processes
 - fastening devices
 - welding symbols
3. Working drawings

DRAFTING 22B (ARCHITECTURAL)

References

- Canadian Government Specification Board. *Architectural Drawing Practices*.
- Hepler and Wallach. *Architectural Drafting and Design*.

Content

1. Architectural drawing
 - drawing standards
2. Planning and design
 - floor plans
 - elevations
 - orientation
3. Structural systems
4. Working drawings
 - set of working drawings

DRAFTING 22C (TOPOGRAPHICAL)

References

- Chevrier. *Topographic Map and Air Photo Interpretation*. Macmillan.
- Department of Mines and Resources, Ottawa. *Every Square Inch*.

Content

1. Data Gathering
 - surveying
 - photogrammetry
2. Interpretation
 - field notes
 - air photos

3. Geographical Data
 - direction
 - location
 - relief
 - physical and cultural features
4. Symbolic Representations
 - scale
 - special drawing equipment
 - lettering
 - symbols
 - map projections

DRAFTING 32A (ENGINEERING GRAPHICS)

References

Jensen. *Engineering Drawing and Design*. 1968,

Content

1. Engineering graphics
 - the graphic language
2. Views
 - orthographic
 - oblique
 - perspective
3. Problem solving
 - descriptive geometry
 - revolutions
 - developments and intersections
 - vector geometry
4. Industrial systems
 - piping
 - power transmission systems
 - fluid power
5. Working drawings
 - simple machine

DRAFTING 32B (ARCHITECTURAL, COMMERCIAL)

References

Canadian Government Specifications Board. *Architectural Drawing Practices*.
Hepler and Wallach. *Architectural Drafting and Design*.

Content

1. Drafting Practices
 - house plans
2. Planning and design
 - light commercial facilities
 - presentation designs
3. Structural systems
 - materials

- construction details
 - fastening methods
 - steel
 - reinforced concrete
4. Working drawings

DRAFTING 32C

The last module of the Drafting sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail,
- b. Engage in actual Drafting supervised by the Drafting teacher as a coordinator and a competent person on the job, or
- c. Take instruction in a related field such as Building Construction or Machine Shop.

GRAPHIC ARTS MAJOR

VISUAL COMMUNICATIONS 12

References

Cogoli, John E. *Photo-Offset Fundamentals*. McKnight and McKnight Pub.
The Life Library of Photography. Time-Life Books, Chicago, Illinois.
Polk. *The Practice of Printing*.

Content

1. Introduction to common units
 - relationship of commercial art, graphic arts and drafting
 - relationship with industry
 - occupational information
2. Image creation
 - a. Commercial art
 - basic drawing
 - composition and design
 - symbols
 - layout
 - b. Drafting
 - shape
 - dimensioning
 - symbols
 - c. Graphic arts
 - typographical composition
 - layout
 - symbols
3. Conversion processes
 - a. Commercial art
 - image conversion

- b. Drafting
 - reproducing drawings
 - c. Graphic arts
 - photography
 - plate making
 - stencil duplicating
- 4. Production processes
 - a. Graphic arts
 - relief printing
 - stencil
 - materials
 - flexography
- 5. Finishing procedures
 - bindery

GRAPHIC ARTS 22A (BASIC DUPLICATION AND REPRODUCTION)

References

Cogoli. *Photo-Offset Fundamentals*.
 Spillman. *Illustrated Teach Yourself Photography*.

Content

- 1. History
- 2. Safety
- 3. Image creation
 - principles of design
- 4. Conversion processes
 - hot metal
 - photographic
 - strike-on
 - hand assembled
 - combination of processes
 - type selection
 - finishing steps
- 5. Production processes
 - photo-conversion
 - presensitized carriers
 - lithography
 - other
- 6. Finishing Processes
 - quality considerations and cost
 - binding techniques

GRAPHIC ARTS 22B (OFFSET LINE AND HALF TONE)

References

Cogoli. *Photo-Offset Fundamentals*.

Content

1. Introduction
 - planographic process
 - line and tonal copy
 - occupations
 - development of photography
2. Image creation
 - typography and design
 - layouts
 - copy preparation
 - proofing
3. Conversion
 - camera
 - film processing
 - proofing
 - stripping
 - platemaking
4. Production
 - offset presswork
 - cutting
 - bindery

GRAPHIC ARTS 22C (LETTERPRESS)

Reference

Polk. *Practice of Printing.*

Content

1. Visual communication
 - relief printing
2. Image creation
 - measurement
 - image materials
 - spacing
 - composition and make-up
 - lock-up
 - proofing
 - typography
3. Conversion
 - plates
4. Production
 - letterpress printing
5. Finishing
 - bindery

GRAPHIC ARTS 32A (ADVANCED COPY)

References

Lithographer 3 and 2 — *Photo-Offset Fundamentals.*

Time-Life Books on Photography.

Content

1. Introduction
 - printing processes relief, planographic, stencil, intaglio
2. Image Creation
 - form and function
 - composition
 - photographic illustration
 - paste-ups
 - make-up
3. Conversion
 - variables — dot size, darkroom techniques, light and color
4. Production
 - presswork
5. Finishing
 - bindery

GRAPHIC ARTS 32B (PRODUCTION TECHNOLOGY)

References

Brown. *The Social Psychology of Industry*. 1965.

Lindbeck and Lathrop. *General Industry*. 1969.

Content

1. An introduction to industry through production technology
 - modern civilization and industrial dependence
 - facets of industry; men, machines, materials
2. Industry and division of labor
 - job and operation breakdowns
 - flow charts
 - labor allocations
3. Personnel organization
 - industrial organization
 - formal organization
 - informal organization
4. Research and development
 - elements of a salable product
 - industrial research
 - prototype development
5. Simulated industrial production
 - industrial production
 - physical problems
 - sociological problems
6. Technological changes
 - growth of knowledge
 - technological changes and man

GRAPHIC ARTS 32C

The last module of the Graphic Arts sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. This in-depth study would be in duplication and reproduction, letterpress, photography or any of the modules named in the Graphic Arts sequence, or
- b. Engage in actual Graphic Arts work supervised by the Graphic Arts teacher as a coordinator and a journeyman on the job.

COMMERCIAL ART MAJOR

VISUAL COMMUNICATIONS 12

Described under Graphic Arts.

COMMERCIAL ART 22A (GENERAL ILLUSTRATION)

Content

1. Introduction
 - relationship of commercial art to other areas of visual communications
 - occupational opportunities
2. Image creation
 - design and drawing
 - constructive drawing
 - expressive drawing
 - design in painting
 - printmaking

COMMERCIAL ART 22B (INFORMATION DESIGN 2D)

Content

1. Introduction
 - educational opportunities
2. Image creation
 - composition and design
 - symbols
 - layout
 - composition and design — three dimensional
 - shape and size

COMMERCIAL ART 22C (DESIGN 3D)

Content

1. Image creation
 - principles and elements of design
 - tools and equipment
 - safety
 - three-dimensional forms
 - visual merchandising
 - exhibits

COMMERCIAL ART 32A (COMMERCIAL ILLUSTRATIONS)

Content

1. Image creation
 - illustration techniques
 - book and magazine illustrations
 - fashion illustrations
 - trademarks and logotypes
 - package design
 - cartoons
 - technical illustrations
 - architectural rendering
 - photography

COMMERCIAL ART 32B (PRODUCTION TECHNOLOGY)

References

Brown. *The Social Psychology of Industry*. 1965.

Lindbeck and Lathrop. *General Industry*. 1969.

Content

1. An introduction to industry through production technology
 - modern civilization and industrial dependence
 - facets of industry; men, machines, materials
2. Industry and division of labor
 - job and operation breakdowns
 - flow charts
 - labor allocations
3. Personnel organization
 - industrial organization
 - formal organization
 - informal organization
4. Research and development
 - elements of a salable product
 - industrial research
 - prototype development
5. Simulated industrial production
 - industrial production
 - physical problems
 - sociological problems
6. Technological changes
 - growth of knowledge
 - technological changes and man

COMMERCIAL ART 32C

The last module of the Commercial Art sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students,

groups of students or whole classes may elect to study an area in more detail. This in-depth study could be in Design 2D or 3D, General Illustration or Commercial Illustration, or any of the modules named in the Commercial Art sequence, or

- b. Engage in actual commercial art work supervised by the Commercial Art teacher as a coordinator of the student and by a craftsman on the job.

II. MECHANICS

Field Objectives

The Mechanics courses should give students an opportunity to:

1. Obtain exposure to, and a basic understanding of, the career field.
2. Develop the basic skills and knowledge to gain job entry or articulation with post-high school institutions.
3. Develop a standard of craftsmanship acceptable to the trade and himself.

RELATED MECHANICS MAJOR

MECHANICS 12

References

No single text is prescribed. Those listed below are recommended as prime references.

Duffy. *Power, Prime Mover of Technology*. 1972.

Stockel. *Auto Service and Repair*. 1969.

Content

1. Career field study
2. Safety
3. Shop practices
4. Automobile Care and Ownership
5. Power Sources
6. Power Plant Systems
7. Transmission of Power
8. Fluiding (optional)

RELATED MECHANICS 22A (POWER SYSTEMS)

References

Stockel. *Auto Service and Repair*. 1969.

Content

1. The internal combustion engine
 - construction and operation of automobile engines
2. The maintenance and repair of the internal combustion engine
 - disassembly procedures
 - assembly procedures
 - engine tune up

3. Engine cooling and lubrication
 - control of heat
 - lubricating systems
 - waste control
 - fuel system service

RELATED MECHANICS 22B (CARPENTRY)

References

Miller. *Building Construction: Materials and Methods*. 1968.

Smith. *Materials of Construction*. 2nd Edition.

Content

1. Introduction to tools and materials
 - design
 - material
 - basic woodworking processes — sawing, surfacing, shaping, joinery, fastening
 - hand tools
2. Introduction to concrete form construction
 - foundations and footings
 - form design
 - soil types
3. Form construction
 - materials
 - standards
 - functions
 - types
4. Principles and practices in making concrete
5. Floor support framing
6. Wall framing
 - types; Western, post and beam
 - sheathing
7. Ceiling and roof framing
 - terms
 - gable roof framing

RELATED MECHANICS 22C (ELECTRIC WIRING)

References

Canadian Electrical Code C22.1. 11th Edition.

Graham. *Interior Electric Wiring*. 6th Edition.

Content

1. Career opportunities in electricity
2. Safety
3. Installation of residential wiring
 - code
 - planning circuits

- tools commonly used
- power outlets
- lighting
- service panel
- special circuits
- wiring practice
- 4. Maintenance of electrical systems and devices
 - gas furnace heating
 - electric heating
 - rewiring techniques
- 5. Management practices
 - business organization
 - bidding for work
 - employee concerns

RELATED MECHANICS 32A (MACHINE SHOP)

References

Walker. *Machining Fundamentals*. 1969.

Content

1. Safety
2. Tool processes
 - measuring
 - layout
3. Shaping materials
 - hand tools
 - machine tools — power saw, lathe, drill press, grinder
4. Materials
 - identification of various metals
 - heat treatment

RELATED MECHANICS 32B (WELDING)

References

Pinder. *Welding*.

Content

1. Career field study
2. Trade study
3. Safety
4. Measurement
5. Electric Arc Process
6. Oxy-acetylene process
7. Fabrication

RELATED MECHANICS 32C

The last module of the Related Mechanics sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail to develop more skills. This in-depth study could be an expansion on any of the modules previously completed in the sequence such as: Automotives, Building Construction, Electricity, Welding or Machine Shop, or
- b. Engage in actual work through a program coordinated by the Related Mechanics teacher and under a qualified person on the job.

AUTOMOTIVES MAJOR MECHANICS 12

References

Duffy. *Power, Prime Mover of Technology*. 1972.

Stockel. *Auto Service and Repair*. 1969.

Content

1. Career field study
2. Safety
3. Shop practices
4. Automobile Care and Ownership
5. Power Sources
6. Power Plant Systems
7. Transmission of Power
8. Fluiding (optional)

AUTOMOTIVES 22A (POWER SYSTEMS)

Reference

Stockel. *Auto Service and Repair*.

Content

1. The internal combustion engine
 - construction and operation
2. The maintenance and repair of the internal combustion engine
 - disassembly procedure
 - engine assembly
 - tune-up
3. Engine cooling and lubrication
 - the heat engine
 - waste control

AUTOMOTIVES 22B (POWER TRAIN)

Reference

Stockel. *Auto Service and Repair*.

Content

1. Power train components and service
 - clutch
 - transmissions
 - drive lines and universal joints
 - rear axle assembly
 - principles of differential gear adjustments
 - disassembly, inspection and assembly of differential
 - axles

AUTOMOTIVES 22C (ALIGNMENT AND BRAKES)

Reference

Stockel. *Auto Service and Repair*.

Content

1. Wheel alignment
 - frame
 - front and suspension systems
 - distribution of weight
 - axle frame relationships
 - tires
 - steering gear
 - shock absorbers
2. Steering geometry
 - adjustments
 - problems related to use and abuse
3. Brakes
 - basic principles
 - common types
 - emergency brakes
 - maintenance and repair

AUTOMOTIVES 32A (FUEL AND TUNE-UP)

References

Stockel. *Auto Service and Repair*.

Wetzel. *Automotive Diagnosis and Tune-Up*.

Content

1. Fuel system
 - types of fuel
 - fuel system components

2. Tune-up
 - test equipment
 - checking other systems of the automobile that relate to tune-up
3. Operational sequence for tune-up.

AUTOMOTIVES 32B (ELECTRICAL SYSTEMS)

References

Billiett and Goings. *Automotive Electrical Systems*.

Stockel. *Auto Service and Repair*.

Content

1. Electricity and magnetism
2. Sources of electrical energy
 - battery
 - generator
 - alternator
3. Application of electricity to the automobile
 - starting system
 - ignition system
 - lights
 - accessories

AUTOMOTIVES 32C

The last module of the Automotives sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail to develop more skills. This in-depth study could be in power systems, tune-up, or any of the modules named in the Automotives sequence, or
- b. Engage in actual garage work through a program coordinated by the Automotives teacher and under a journeyman mechanic on the job.

AUTO BODY MAJOR

AUTO BODY 12

References

Sargent. *Automotive Sheet Metal Repairs*. 1969.

Venk et al. *Automotive Collision Work*.

Content

1. Career field study
 - employment opportunities
 - trade certification
2. Introduction to auto body work
 - auto body components

- types of damage
- special equipment use
- 3. Safety awareness
- 4. Shop operation
 - procedures
 - welding exercises
- 4. Oxy-acetylene welding
 - procedures
 - welding exercises
- 6. Metal finishing
 - tools and processes
- 7. Painting
 - surface preparation
 - undercoating
 - paint application

AUTO BODY 22A

References

References the same as for Auto Body 12.

Content

1. Alignment
 - analysis of damage
 - use of templates
2. Auto body welding
 - metals
 - practice welds
 - cutting
3. Metal finishing
 - use of heat
 - filling metal
 - painting
4. Auto body trim and hardware

AUTO BODY 22B

Content

1. Shop operation
 - communications
 - tools
 - shop design
2. Auto body construction
 - body component shaping
 - assembly — welding, fasteners
 - seat construction
3. Alignment theory and practice
 - methods
 - body jack

4. Auto body welding
 - types of welding
 - joints
 - light metal
5. Door repairs

AUTO BODY 22C

Content

1. The auto body trade
 - management
 - labor relations
2. Introduction to heavy welding
 - cutting
 - gas welding
 - brazing
 - arc welding
3. Bumper repair
4. Frame repair
5. Practice panel

AUTO BODY 32A

Content

1. Estimating auto body damage
 - estimating costs
 - assessing parts and labor
 - sources of parts
2. Spray booth operation
3. Auto body alignment
 - shaping and fitting components
4. Metal finishing
 - patching
5. Live repairs
 - repair fenders, doors, hood, deck lid
 - paint a vehicle

AUTO BODY 32B

Content

1. Estimating and work orders
 - forms
2. Painting
 - technical information sources
 - mixing paint
 - applying paint
3. Frames and alignment
 - frame straighteners
 - wheel alignment

4. Welding
 - types of joints
 - brazing
 - arc welding

AUTO BODY 32C

The final module in the Auto Body major is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide depth to a module taken previously in the sequence. Individual students, groups of students or the whole class may elect to study an area in depth. This depth study could be in advanced alignment, welding, painting or any of the topics in the Auto Body sequence, or
- b. Engage in actual auto body work on the job supervised by the Auto Body teacher as a work coordinator and by a journeyman.

AIRCRAFT MAINTENANCE MAJOR

MECHANICS 12

Reference

Duffy. *Power, Prime Mover of Technology*. 1972.

Content

1. Career field study
2. Safety
3. Shop practices
4. Automobile Care and Ownership
5. Power Sources
6. Power Plant Systems
7. Transmission of Power
8. Fluiding (optional)

AIRCRAFT MAINTENANCE 22A

References

Northrop. *Basic Science for Aerospace Vehicles*.

Northrop. *Maintenance and Repair of Aerospace Vehicles*.

Northrop. *Power Plants for Aerospace Vehicles*.

Content

1. Basic aeronautical theory
 - aircraft parts
 - control factors
 - flight controls
 - instruments
2. Aircraft woodwork
 - materials
 - tools
 - procedures

3. Fabric coverings
 - materials and procedures
4. Aircraft metals and heat treatment
 - physical properties
 - metal identification and treatment
5. Plastics
 - classification
 - fabrication

AIRCRAFT MAINTENANCE 22B

References

References as listed in 22A

Content

1. Aircraft sheet metal work
 - aluminum alloys
 - fasteners
 - fabrication
2. Aircraft bench metal work and welding
 - tools and equipment
 - welding

AIRCRAFT MAINTENANCE 22C

Content

1. Flight controls and rigging
 - control
 - repair procedures
 - safety awareness
 - fire extinguishing
2. Weight and balance
 - weight
 - reports
3. Aircraft systems
 - fuel and lubrication system
 - heating and ventilating system
 - de-icing and anti-icing systems
 - oxygen systems
 - water and waste systems
4. Aircraft hydraulics
 - principles of hydraulics
 - components
 - hydraulic systems in an aircraft
5. Aircraft brakes
 - types
 - service

AIRCRAFT MAINTENANCE 32A

References

References as listed in Aircraft Maintenance 22A.

Content

1. Aircraft powerplants
 - history
 - engine classifications
 - heat engine
 - engine systems
 - log book
2. Propellers
 - design and function
 - types
 - maintenance
3. Electrical systems
 - basic electricity
 - generators and motors (AC and DC)
 - wiring installation

AIRCRAFT MAINTENANCE 32B

Content

1. Overhaul procedure
 - inventory and records
 - disassembling
2. Engine overhaul
 - parts reconditioning
 - engine assembly
 - engine testing

AIRCRAFT MAINTENANCE 32C

The last module of the Aircraft Maintenance sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail to develop more skills. This in-depth study could be in power systems, fabrication, or any of the modules named in the Aircraft Maintenance sequence, or
- b. Engage in actual work through a program coordinated by the Aircraft Maintenance teacher and under a qualified mechanic on the job.

III. CONSTRUCTION AND FABRICATION

Field Objectives

The Construction and Fabrication career field should provide a student an opportunity to:

1. Gain an understanding of the career field.

2. Develop skills and knowledge necessary for job entry and/or articulation with post-secondary educational institutions.
3. Develop a standard of performance acceptable to craftsmen in the trade, government and industry.
4. Study union organization and legislation regulating working conditions.

BUILDING CONSTRUCTION MAJOR

BUILDING CONSTRUCTION 12

References

Miller. *Building Construction: Materials and Methods*.

Smith. *Materials of Construction*. 2nd Edition.

Content

1. Tool processes used in measuring and layout.
 - measuring and layout tools
2. Safety
3. Shaping materials
 - removal
 - combining
 - forming
4. Tool maintenance
5. Applied mathematics and measurement
 - trade mathematics
 - measurement systems (English, metric)
6. Planning and design
7. Materials
 - wood
 - glue
 - wood finishes
8. Career field study
 - occupations
 - employment opportunities

BUILDING CONSTRUCTION 22A

(Cabinet and Furniture Making)

References

Harris. *Cabinet Making and Building Construction*.

Content

1. Introduction to cabinet and furniture making.
 - design
 - material
 - processes
 - tools
2. Basics of cabinet making
 - joints
 - assembly
3. Finishing
 - reasons for finishing

4. Design
 - function
 - appearance

BUILDING CONSTRUCTION 22B **(Concrete and Form Making)**

References

A23-1 — 1967 Concrete Materials and Methods of Concrete Construction.
Canadian Standards Association.

Content

1. Principles of laying out building lines
 - legal description
 - reference points
2. Introduction to concrete form construction
 - foundations and footings
 - design of forms
 - soils
3. Form construction
4. Principles and practices in making concrete
 - definition of concrete
 - materials used
 - proportions
 - testing

BUILDING CONSTRUCTION 22C **Framing (Residential)**

References

Miller. *Building Construction: Materials and Methods.*

Content

1. Floor support framing
 - layout and construction systems
2. Floor framing
 - layout
 - construction
 - sheathing
 - bracing
3. Wall framing
 - post and beam
 - balloon
 - Western platform
 - sheathing
4. Ceiling and roof framing
 - joists
 - roof terminology
 - types
 - cut rafters
 - sheathing

BUILDING CONSTRUCTION 32A

(Sketching, Reading Drawings and Estimating)

Content

1. Quantity survey
 - excavation
 - formwork
 - drainage
 - concrete
 - waterproofing
 - floor support
 - floor assembly
 - walls
 - ceiling joists and roof framing
 - roof covering
 - doors and windows
 - interior finish
 - exterior wall finish
2. Material and labor costs
 - unit costs
3. Sub-trade bids
 - plumbing
 - electrical
 - heating
 - plastering or dry wall
 - sheet metal
 - painting
 - landscaping
4. Overhead and profit
 - salaries
 - permits and legal costs
 - utilities
 - testing
 - professional services
 - cleanup
 - plant
 - profit
5. Reading and drawing
 - architectural symbols
 - working drawings
 - full scale layout
6. Sketching
 - freehand sketching
7. Pictorial drawing
 - isometric

BUILDING CONSTRUCTION 32B

(Exterior and Interior Finishing)

Content

1. Introduction to exterior and interior finishing
 - design
 - materials

2. Safety
 - scaffolds
 - power tools
3. Exterior finishing
 - corners and eave
 - exterior trim
 - roof finishing
 - windows and doors
 - exterior wall covering
4. Stair construction
 - stair design
 - layout
5. Insulation, vapor barriers, building papers and ventilation
6. Interior finishing
 - wall and ceiling materials
 - finished floors
7. Protective and decorative coatings
 - materials
 - applications

BUILDING CONSTRUCTION 32C

This last module in the Building Construction major is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or the whole class may elect to study an area in depth. This could be cabinet making, framing (commercial or residential), concrete work or any of the modules named in the Building Construction sequence, or
- b. Engage in actual construction work supervised by the Building Construction teacher as a work experience coordinator and a journeyman on the job.

MACHINE SHOP MAJOR

MACHINE SHOP 12

References

Walker. *Machining Fundamentals*. 1969.

Content

1. Safety
2. Measurement and layout
3. Tool processes
 - removal of material by mechanical means
 - power saw
 - lathe
 - shaper
 - drill press
 - grinder

4. Metal characteristics
 - identification
 - treatment
 - application

MACHINE SHOP 22A

(Benchwork, Lathe)

Content

1. Career choices
 - occupations
 - opportunities
2. Measurement and layout
3. Safety
4. Tool Processes
 - removal of materials by hand and power tools

MACHINE SHOP 22B

(Benchwork, Machines)

References

Feirer. *Machine Tool Metal Working*. 1973.

Walker, John R. *Machining Fundamentals*.

Content

1. Material shaping
 - shearing tools
 - hack saws
 - chisels
 - files
 - taps and dies
 - reamers
 - power tools
 - lathe
 - milling machine
 - shaper
2. Thermal Removal
 - use of oxy-acetyline torch

MACHINE SHOP 22C

(Advanced Machinery)

Reference

Oberg and Jones. *Machinery Handbook*. 17th Edition.

Content

1. Advanced machinery
 - mating parts
 - fit

- classification
 - assembly
 - precision measuring
 - shop calculations
 - threads
 - tapers
 - pulleys and gears
2. Machine operations
 - cutting threads
 - tapers
 - keyways
 - spline cutting
 3. Heat treating

MACHINE SHOP 32A **(Reading Drawings and Estimating)**

Content

1. Graphic language
 - types of drawings
2. Instrument drawing
 - drafting tool use
 - make drawings
3. Lettering
4. Shape description
 - perspective
 - orthographic
 - oblique
 - sectional views
5. Size description
6. Thread description
 - conventional
 - specifications
7. Freehand sketching
 - isometric
 - oblique
 - orthographic

MACHINE SHOP 32B **(Metallurgy)**

Content

1. Ferrous and non-ferrous metals
 - classification
 - ferrous
 - non-ferrous
 - high temperature
 - rare metals
2. Production of steel

3. Properties of metals
4. Testing and inspection of metals
5. Metal working processes
 - removal
 - joining

MACHINE SHOP 32C

This last module in the Machine Shop major is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or the whole class may elect to study an area in depth. This could be more lathe work, metallurgy, other machining or any of the modules named in the Machine Shop sequence, or
- b. Engage in actual machining work supervised by the Machine Shop teacher as a work experience coordinator and a journeyman on the job.

WELDING MAJOR

WELDING 12

Reference

Pender. *Welding*.

Content

1. Career field study
2. Trade study
3. Safety
4. Measurement and layout for welding
5. Joining and separating metals
 - cohesion
 - adhesion
6. Metal removal
 - thermal separation
7. Fabrication and repair

WELDING 22A

Reference

Althouse et al. *Modern Welding*. 1970.

Content

1. The electric arc process
 - safety
 - terminology
 - machines and electrodes
 - cohesion

2. Oxy-acetylene process
 - safety
 - cohesion
 - flame cutting
 - forming
 - pipe welding
3. Fabrication and repair

WELDING 22B

Content

1. Electric arc
 - cohesion
 - special techniques
2. Oxy-acetylene
 - brazing
 - hard surfacing
3. Fabrication and repair

WELDING 22C

Content

1. Electric arc welding
 - vee butts
 - pipe welding
2. Special electric arc applications
 - specialized electrodes
 - thermal separation
3. Special oxy-acetylene applications
 - braze welding
 - unique applications of cohesion and adhesion
4. Fabrication and repair
5. Metal inert gas welding (optional)
 - theory
 - TIG welding
6. Tungsten inert welding (optional)
 - theory
 - TIG welding

WELDING 32A

Content

1. Reading drawings and sketching
 - lines
 - projections
 - freehand sketching
 - symbols
2. Metallurgy
 - properties of metals
 - identification of metals
 - classification; ferrous and non-ferrous

WELDING 32B

Content

1. Fabrication and repair
 - design
 - project work

WELDING 32C

The last module in the Welding major is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously in the Welding sequence. Individual students, groups of students or the whole class may elect to study an area in depth. This could be advanced and special Welding techniques, fabrication of special projects or research in metallurgy, or
- b. Engage in actual Welding on the job supervised by the Welding teacher as a work coordinator and by a journeyman.

SHEET METAL MAJOR

SHEET METAL 12

References

Hand Processes, Sheet Metal Series. 1964.
Machine Process, Sheet Metal Series. 1964.
Measurement and Layout. 1964.
Bruce. *Sheet Metal Shop Practice.* 1966.

Content

1. Career field study
 - related occupations
 - employment opportunities
 - trade organization
2. Safety
3. Industrial structures
 - social structure of industry
 - collective bargaining
 - apprenticeship
4. Measurement
 - systems; metric, English
 - measuring instruments
 - layout instruments
5. Tool processes
 - mechanical removal of metal
 - thermal removal
 - chemical removal
 - combining material; fastening methods
 - forming

6. Elements of pattern development
 - simple pattern development
 - parallel-line development
 - radical-line development

SHEET METAL 22A **(Pattern Development)**

Content

1. Principles of sheet metal layout
 - simple pattern development
 - parallel line development
 - radical line development
 - triangulation
2. Development of layouts

SHEET METAL 22B **(General Practices)**

Content

1. General sheet metal work
 - tools and equipment
 - rectangular objects
 - conical objects

SHEET METAL 22C **(Joining)**

Content

1. Joining sheet metal
 - mechanical methods of joining
 - adhesion
 - cohesion
 - projects applying methods of joining

SHEET METAL 32A **(Air-conditioning and Residential Heating)**

Content

1. Heating and air-conditioning
 - air-conditioning systems; types, installation, controls
 - heating systems; fittings, installations, controls

SHEET METAL 32B **(Cabinet Work)**

Content

1. Introduction to sheet metal cabinet work
 - hospital equipment

- restaurant equipment
- general cabinet work
- layout and manufacture one cabinet type project

SHEET METAL 32C

The last module of the Sheet Metal sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. This in-depth study could be in Pattern Development, Air-conditioning, Heating or any of the modules named in the Sheet Metal sequence, or
- b. Engage in actual Sheet Metal work supervised by the Sheet Metal teacher as a coordinator of the student and a journeyman on the job.

PIPING MAJOR

PIPING 12

References

Frankland. *Pipe Fitters' and Pipe Welders' Handbook*.
Plumbing and Drainage Regulations (Alberta).

Content

1. Career field study
 - occupations
 - employment opportunities
2. Trade study
 - certification
 - structure of the piping industry
 - union organization
3. Safety
4. Measurement
 - systems; English, metric
 - instrument used
 - layout
5. Piping tools and methods of joining pipe
 - threading
 - soldering
 - caulking
 - mechanical joints
 - cementing
6. Adapting pipes and fittings
 - steel to copper
 - metal to plastic
 - substitutions

7. Identifying, selecting and ordering materials
 - reading fittings
 - identifying and selecting materials
 - valve functions

PIPING 22A **(Domestic Plumbing)**

Content

1. Rough-in procedures
 - plan, layout, cut holes
 - assemble and install drains
 - install water lines
 - rough in tub
2. Finishing procedures
 - set water closet
 - hang lavatory basin
 - connect water lines
 - finish and test

PIPING 22B **(Domestic Heating)**

References

Steamfitting and Hot Water Heating Information Sheets.

Content

1. Hot water heating
 - sizing and erecting boiler
 - selecting and installing radiation and convection systems
 - insulating and preparation for operation
 - adjusting and setting controls
2. Gasfitting
 - domestic
 - planning, sizing, laying out, installing and testing gas piping in a house
 - sizing and erecting gas appliances
 - activating, adjusting, setting and servicing gas appliances
 - venting gas appliances for domestic use
 - converting gas appliances for domestic use

PIPING 22C **(Commercial and Industrial Heating)**

Content

1. Low pressure steam heating
 - sizing, erecting and installing a low pressure steam boiler
 - selecting and installing radiator, convectors and unit heaters
 - adjust and set controls
2. Applications of steam other than heating
 - commercial uses of steam other than for heating
 - hanging and supporting pipe
 - expansion and contraction allowances

PIPING 32A

(Shop Drawing, Sketching, Estimating and Reading Drawings)

Content

1. Symbols and lines
2. Using the drawing instruments
3. Reading drawings
4. Draw simple plan and elevation sketch
5. Make an isometric drawing

PIPING 32B

(Commercial and Industrial Plumbing)

Content

1. Plumbing procedures used in multiple storied buildings or industrial plants
 - sizing vents and rains
 - installing sleeves and inserts for running pipes through concrete
 - prefabrication techniques
 - setting fixtures
 - sizing rainwater leaders
 - soventing techniques

PIPING 32C

The last module in the Piping sequence is open to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students, or the whole class may elect to study an area in more detail. This could be in domestic plumbing, commercial plumbing, heating, air conditioning, or any of the modules named in the Piping sequence, or
- b. Engage in actual pipe fitting or plumbing work supervised by the Piping teacher as a coordinator and a journeyman on the job.

IV. ELECTRICITY-ELECTRONICS

Field Objectives

The Electricity-Electronics career field should provide a student an opportunity to:

1. Gain an understanding of the career field.
2. Develop skills and knowledge necessary for job entry or articulation with post-high school institutions.
3. Develop and strive to achieve standards of performance acceptable to the industry.

ELECTRICITY MAJOR

ELECTRICITY-ELECTRONICS 12

Reference

Long. *Intermediate Electricity, Book II*. 1969.

Content

1. Career field study
 - occupational information
2. Safety and first aid
3. Electricity
 - definition and sources
4. Conductors and insulators and semiconductors
5. Magnetism and electromagnetism
6. Electrical units and measurement
7. Electric circuits
8. Symbolic representation of electric components
9. Electrical laws; Ohm's, Power, Kirchoff's
10. Soldering and making connections in electrical circuits
11. Systems study
 - audio
 - electrical distribution
 - generation plants
 - broadcast receiver
 - others that are appropriate

ELECTRICITY-ELECTRONICS 22A

References

Grob. *Basic Electronics*. 1971.

Miller et al. *Energy, Electricity and Electronics*.

Zbar. *Laboratory Manual — Basic Electricity*. 3rd Edition.

Content

1. Alternating voltage and current
 - A.C. power-generation
 - audio and radio signals
 - electrical laws
2. Inductance
3. Capacitance
4. Capacitive reactance
5. Capacitive circuits
6. Alternating current circuits
7. Semi-conductor and vacuum tube diode

8. Power supplies
9. Transistors
10. Electronic tubes

ELECTRICITY 22B (Residential Wiring)

References

Graham. *Interior Electric Wiring*. 6th Edition
Canadian Electrical Code, C22.1. 11th Edition, 1972.

Content

1. Career opportunities
2. Safety
3. Installation of residential wiring
 - planning
 - tools
 - installation procedures
 - power outlets
 - code requirements
 - special circuits
4. Maintenance of electrical services
 - gas furnace heating controls
 - electric heating
 - rewiring
5. Management practices
 - organization
 - bidding for work
 - employee concerns

ELECTRICITY 22C (Appliance Service)

References

Repair Manuals.

Content

1. Service equipment
 - care and use of hand tools and meters
 - finding service information
2. Troubleshooting
 - safety
 - cleaning appliances
 - procedures for finding problem
3. Servicing procedures
4. Estimating and pricing
5. Trade supplies
6. Occupational information

ELECTRICITY 32A

(Commercial Wiring)

References

Canadian Electrical Code.

Content

1. Technical drawing
 - plan views, dimensioning and symbols
2. Wiring methods
 - raceways and conductors
 - tools and equipment
 - fittings and boxes
3. Installation of services and feeders
 - service entrance
 - protective equipment
 - metering equipment
4. Control equipment
5. Installation of equipment
 - lighting equipment
 - special equipment
6. Heating controls

ELECTRICITY 32B

(Electro-magnetical)

Content

1. Basic generator
2. D.C. motors
3. A.C. generators
4. A.C. motors
5. Transformers

ELECTRICITY 32C

The final module in the Electricity sequence is available to students who have completed 30 credits or six modules in the major.

The 125 hours of instruction time in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. The in-depth study could be in residential wiring, appliance servicing or any of the other modules listed in the sequences.
- b. Engage in actual wiring or electrical repair work by means of a program co-ordinated by the Electricity teacher and under the supervision of a journeyman on the job.

ELECTRONICS MAJOR

ELECTRICITY-ELECTRONICS 12 and 22A

References

Are common with the Electricity Major.

ELECTRONICS 22B

(AM - FM)

Reference

Grob, *Basic Electronics*. 1971.

Content

1. Course orientation
2. Career opportunities
3. Radio transmission and reception principles
 - history
 - receiver power supplies
 - radio receiver audio amplifiers
 - AM demodulation
 - automatic volume control
 - AM-IF amplifiers
 - AM converters
 - Radio servicing
 - FM receivers
 - AM transmission theory
 - power amplifiers
 - transmitter tubes
 - transmitter power supplies
 - transmitter controls
 - AM modulation
 - FM transmitters
 - antennas and transmission lines

ELECTRONICS 22C

(Solid State I.C.'s)

Reference

Turner, Rufus P. *ABC's of Integrated Circuits*.

Content

1. Historical Review of Solid-State Electronics
2. Field Effect Transistors
3. MOS FET Semiconductors
4. Tunnel Diode
5. Silicon Control
5. Silicon Control
6. Integrated Circuits
7. I.C. Amplifiers
8. I.C. Oscillators
9. Applications of I.C.

ELECTRONICS 32A

(T.V. Receivers)

Reference

Grob, *Basic Television*.

Content

1. Introduction to television
2. Safety
3. Television receivers
4. The cathode-ray tube
5. Television receiver circuitry
6. The video signal and picture reproduction
7. Video I-F amplifiers
8. R.F. tuners
9. Producing a T.V. signal
10. Television antennas
11. The sound circuits

ELECTRONICS 32B (Computer and Instruments)

A. Computer

1. Basic binary and Boolean algebra concepts
2. Codes
3. Logic systems
4. Practical systems

and/or

B. Instruments

1. Career field study
2. Measurement and measuring devices
 - meters
 - bridges
 - oscilloscopes
 - semiconductor testers
 - tube testers
 - signal generators
 - capacitance checkers.

ELECTRONICS 32C

The last module of the Electricity-Electronics sequence is open to students who have completed 30 credits or 6 modules in the major. The 32C course may be taken for 5 or 10 credits.

The time may be used to:

- a. Provide greater depth to content taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. This in-depth study could be in Industrial Electronics, Color T.V., Computer, or any of the topics previously stated.
- b. Engage in actual job training under a work experience plan whereby the Electronics teacher acts as coordinator between the student and industry.

V. PERSONAL SERVICES

Field Objectives

The Personal Services courses should give students an opportunity to:

1. Gain an understanding of the Career Field.

2. Promote a concept of personal service and assist the student to develop an individual's well-being and health.
3. Develop the basic skills and knowledge necessary for entry into job or post-secondary educational institutions.

FOOD PREPARATION MAJOR

FOOD PREPARATION 12

Reference

Haines. *Food Preparation for Hotels, Restaurants and Cafeterias.*

Content

1. Opportunities in the food service industry.
2. Utensils and cooking equipment
3. Tools and processes used to serve and portion foods
4. Processes used to cut, form and mix foods
5. Safety in the kitchen
6. Storage of food
7. Cleaning and sanitation
8. Measuring and planning
9. Basic nutrition and menu planning
10. Practical cookery

FOOD PREPARATION 22A (Kitchen Production)

Reference

Morgan. *Supervision and Management of Quantity Food Preparation.*

Content

1. Vegetable cookery
 - classification
 - standards
 - cooking techniques
2. Stocks
3. Soups
 - classification
 - standards
 - garnishes
4. Sauces
5. Gravies
6. Meats
7. Desserts and short pastry products

FOOD PREPARATION 22B
(Pantry Production)

Contents

1. Pantry production
 - sandwiches
 - garnishes
2. Salads
3. Appetizers

FOOD PREPARATION 22C
(Short Order)

Content

1. Beverages
2. Eggs
3. Dairy products
4. Use of fats and oils
5. Cereals and breakfast foods
6. Serving food
7. The menu

FOOD PREPARATION 32A
(Kitchen Production)

Content

1. Meat
2. Fish
3. Poultry
4. Sauces, soups, salads, and vegetable dishes
5. Serving the public

FOOD PREPARATION 32B
(Baking and Decorating)

Content

1. Baking ingredients
2. Cakes, pastries and yeast doughs
3. Decorating and filling cakes, yeast goods and pastries
4. Desserts

FOOD PREPARATION 32C
(Kitchen Management)

This course may be taught for 5 credits, or for 10 credits by utilizing the work study section.

Content

1. Managing the kitchen
2. Nutrition

3. Purchase, storage and control of kitchen supplies
4. Planning work activity
5. Cost control and menu pricing
6. Serving of food
7. Work study

FOOD PREPARATION 32D

The final module in the Food Preparation major is open to students who have completed 35 to 40 credits in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously in the sequence. Individual students, groups of students or the whole class may elect to study an area in depth.
- b. Engage in actual food service work on the job supervised by the Food Preparation teacher and a chef on the job.

BEAUTY CULTURE MAJOR

BEAUTY CULTURE 12

Reference

Kibbe and Ware. *Standard Textbook of Cosmetology*. 1972.

Content

1. Career field study
2. Equipment and implements
 - identification
 - safety
3. Trichology
4. Nail and manicures
5. Skin care, make-up and appearance
6. Personality development
7. Hair styling
8. Basic cosmetology

BEAUTY CULTURE 22A

Content

1. Hairstyling
2. Trichology
3. Hair coloring
4. Cosmetology
5. Equipment and implements
6. Ethics

BEAUTY CULTURE 22B

Content

1. Hair coloring, semi-permanent
2. Hair styling
3. Cold waving
4. Physiology and anatomy
5. Trichology

BEAUTY CULTURE 22C

Content

1. Hairstyling
2. Cold waving
3. First aid and health
4. Hair coloring

BEAUTY CULTURE 32A

Content

1. Advanced hair styling
2. Hair coloring
3. Advanced cosmetology
4. Shop management

BEAUTY CULTURE 32B

Content

1. Hair styling
2. Competitive judging
3. Color
4. Shop management
5. Wigs
6. Job search
7. Practice

BEAUTY CULTURE 32C and 32D

Content

1. Customer service
— develop speed and accuracy
2. Standards
3. Meeting the customer
4. Work experience

FASHION AND FURNISHINGS MAJOR

FASHION AND FURNISHINGS 12 (Quick and Easy Sewing)

References

- Cunningham. *Singer Sewing Book*.
Craig. *Clothing: A Comprehensive Guide*. 1968.

Content

1. Career field study
2. Safety
3. Introduction to Clothing
— significance of clothing to individuals
4. Planning a wardrobe
5. Introduction to fabrics
6. Sewing by machine
7. Patterns

FASHION AND FURNISHINGS 22A (Knits)

Content

1. Knits on the market
2. Care of knits
3. Patterns for knits
4. Knit sewing techniques
5. Projects using knits

FASHION AND FURNISHINGS 22B (Fashion World)

Content

1. Principles and elements of design
2. Fashion or fad
3. Modelling
4. Consumerism
5. Merchandising in the fashion world
6. Projects

FASHION AND FURNISHINGS 22C (Tailoring)

Content

1. Fabrics for tailoring
2. Fitting and alterations
3. Tailoring techniques
4. Accessories

FASHION AND FURNISHINGS 32A

(Interior Design)

Content

1. Principles and elements of design as related to the home
2. Household textiles
3. Projects for the home
 - window dressing
 - simple upholstery
 - home accessories
 - table linen

FASHION AND FURNISHINGS 32B

(Custom Sewing and Textiles)

Content

1. Career opportunities
2. Government and union legislation
3. Management
4. Consumerism
5. Cleaning fabrics

(Alternate Content for 32B)

PRODUCTION TECHNOLOGY

References

- Brown. *The Social Psychology of Industry*. 1965.
- Lindbeck and Lathrop. *General Industry*. 1969.

Content

1. An introduction to industry through production technology
 - modern civilization and industrial dependence
 - facets of industry; men, machines, materials
2. Industry and division of labor
 - job and operation breakdown
 - flow charts
 - labor allocations
3. Personnel organization
 - industrial organization
 - formal organization
 - informal organization
4. Research and development
 - elements of salable product
 - industrial research
 - prototype development
5. Simulated industrial production
 - industrial production
 - physical problems
 - sociological problems
6. Technological changes
 - growth of knowledge
 - technological changes and man

FASHIONS AND FURNISHINGS 32C

The last module of the Fashions and Furnishings sequence is open to students who have completed 30 credits or 6 modules in the major.

The 125 hours of instruction time available in this module may be used to:

- a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. This in-depth study could be in Textiles, Construction, Custom Sewing, or any of the topics previously studied.
- b. Engage in actual job training under a work experience plan whereby the Fashions and Fabrics teacher acts as coordinator between student and industry.
- c. Establish a boutique within the school which would incorporate business training with creative promotion, production and sales.

HEALTH SERVICES MAJOR

HEALTH SERVICES 12

References

Cherescavich. *Textbook for Nursing Assistants*. 2nd Edition.

Hornemann. *Basic Nursing Procedures*. 1968.

Content

1. First aid
 - resuscitation
 - control of bleeding
 - bone and joint injuries
 - dressings and bandages
 - casualty care
 - community disaster
2. Health careers
 - nursing assistant
 - dietary aide
 - housekeeping aide
 - activities aide
 - dental receptionist
 - unit clerk
 - medical secretary
3. Home nursing
 - community health agencies
 - illness in the home
 - patient care
 - common treatments
 - special needs of sick
 - adaptation of home equipment

HEALTH SERVICES 22

Content

1. Orientation to health care institutions
2. Health care assistant

3. Communication and vocabulary
4. Anatomy and physiology
5. Nursing practices
6. Disease classification
7. Safety
8. Special community problems

HEALTH SERVICES 32A

Content

1. Role of nursing assistant
2. The patient
3. Working environment
4. Patient care and comfort
5. Nutritional needs
6. Anatomy and physiology

HEALTH SERVICES 32B

Content

1. Introduction to institutional services
2. Communications
3. Anatomy and physiology
4. Stages of growth of the human
5. Patient care
6. Care of special types of patients

VII. PERFORMING ARTS — TELEVISION CRAFTS

PERFORMING ARTS MAJOR

PERFORMING ARTS 12

1. Career Field Study
2. Tool Processes
 - Drafting
 - Hand Tools
 - Power Tools
3. Staging Procedures
4. Television Procedures

PERFORMING ARTS 22A (Theatre Speech)

1. Anatomy of Speech
2. Interpretation of Prose
3. Interpretation of Poetry
4. Dialects
5. Reader's Theatre

PERFORMING ARTS 22B
(Stage Movement)

1. Technique
2. Exercises
3. Creative Movement
4. Fencing
5. Pantomime

PERFORMING ARTS 22C
(Acting)

1. Script Analysis
2. Character Analysis
3. Improvisation
4. Performance Exploration
5. Radio and Television Acting
6. Stylistic Acting
7. Makeup

PERFORMING ARTS 22A
(History of Theatre)

1. Development of Playwriting
2. Development of the Physical Theatre
3. History of Costume
4. Development of Theatre Operation

PERFORMING ARTS 32B
(Stage Production)

1. One-Act Play Production
2. Full-Length Play Production

PERFORMING ARTS 32C

The 32C module in Performing Arts is unstructured in order to give the student an opportunity to:

1. Provide time for a greater depth study of a topic previously taken in the course, or
2. Undertake a project in the field under the direct supervision of the teacher.

TELEVISION CRAFTS MAJOR

Performing Arts 12 serves as the pre-requisite for Television Crafts 22.

TELEVISION CRAFTS 22A
(Set and Property Construction)

1. Tools
2. Types of Scenery
3. Materials
4. Drafting

TELEVISION CRAFTS 22B
(Lighting)

1. Elements of Lighting
2. Light Instruments
3. Color
4. Lighting Control
5. Television Lighting Practice
6. Stage Lighting Practice
7. Production Operations

TELEVISION CRAFTS 22C
(Studio and Control Room Operations)

1. Basic Electronics
2. Cameras
3. Lenses
4. Video Operation
5. Audio
6. Special Effects
7. V T R Techniques

TELEVISION CRAFTS 32A
(The Planning — Production Team)

1. Writing the Television Show
2. Producing
3. Production Assisting

TELEVISION CRAFTS 32B
(Television Production)

TELEVISION CRAFTS 32C

The 32C module of Television Crafts gives an opportunity for the student to:

1. Go into depth of study in a topic previously studied in the course, or
2. Undertake a project in the field under the direct supervision of the teacher.

LANGUAGE ARTS

Objectives

To develop the ability to communicate with increasing maturity, logic and clarity in speech, writing, and in closely associated expressive arts.

To develop the ability to listen, view, speak, read and write with insight, discrimination and imagination for the end result of personal satisfaction and enjoyment.

To examine a variety of expressed thought with a view to understanding and responding to mankind's values, customs and traits, and consequently, developing a value system with which to make decisions and to live.

To encourage an appreciation of the impact of changes in style, media, and social influence upon the developing English language.

Note:

For an expansion of the foregoing objectives and identification of related skills, refer to the *Secondary Language Arts Handbook*. The statement in the handbook represents the basic objectives and skills for all language arts courses at the junior and senior high school levels.

CORE COURSES

ENGLISH 13

Introduction

English 13 is a 5 credit course with the emphasis on the skills of listening, reading, speaking, viewing and writing as they relate to the needs of everyday life, with every attempt being made to integrate these areas. Through the use of a wide variety of appropriate materials, students are expected to increase both their interest and skill in understanding and interpreting ideas, and in expressing them in clear, accurate, effective speech and writing. Either this course or English 10 may serve as a prerequisite to any grade XI course in English.

Course Content

The following content areas are to be integrated:

- A. Listening Activities
- B. Reading Activities
- C. Speaking Activities
- D. Viewing Activities
- E. Writing Activities

Recommended Texts

- A. — Cline, Joy, Ken Williams, and Dan Dolan. *Voices in Literature, Language and Composition, Book 2*. Toronto: Ginn & Co., 1968
- B.— Novels — One or more from the recommended titles included in the list, Grade X Novels. See Section F of the *Secondary Language Arts Handbook*.
- C.— Modern plays — One or more from the recommended titles in the list, Grade X Plays. See Section F of the *Secondary Language Arts Handbook*.

Optional

- D.— Poetry to be chosen from one or more of the following:

Corbin, R. *Currents in Poetry*.

Eckersley, William. *Impact*.

Metcalfe, J. and G. Callaghan. *Rhyme and Reason*. Toronto: The Ryerson Press.

Rittenhouse, C. et al. *Words on Wings*.
Rutledge, D. *The Blue Guitar*.
Smiley, M. B. (Director). *Stories in Song and Verse*.
Summerfield, G. *Voices I*.
Weir, C. *Steel and Summer Rain*.

E.— Non-Fiction (Optional) — Select one or more titles from the recommended list entitled, Grade X Non-Fiction, in Section F of the *Secondary Language Arts Handbook*.

ENGLISH 10

Introduction and Course Content

English 10 is a 5 credit matriculation course which attempts to correlate literature and language through integrating language techniques and communication skills with a study of the short story, the novel, non-fiction, the full-length modern play and a Shakespearean play. Either this course or English 13 may serve as a prerequisite to any Grade XI course in English.

Recommended Texts

A.— Language

Fleming, Harold, and Allan Glatthorn. *Composition: Models and Exercises* 10. New York: Harcourt, Brace & World, Inc. 1965.

B.— Prose

1. The Short Story

A minimum of ten to be selected for class study and/or independent reading.
Maline, J. L. and James Berkley (eds). *Approaches to Literature, Vol. 1: Studies in the Short Story*. New York: Random House, Inc., 1967.

2. The Novel

At least one to be studied from the recommended titles included in the list, Grade X Novels. See Section F of the *Secondary Language Arts Handbook*.

C.— Non-Fiction (Optional)

If time and student interest permit, choose one or more from the recommended titles included in the list, Grade X Non-Fiction. See Section F of the *Secondary Language Arts Handbook*.

D.— The Full-Length Modern Play

If time and student interest permit study one or more of the plays from the recommended titles included in the list, Grade X Plays. See Section F of the *Secondary Language Arts Handbook*.

E.— The Shakespearean Play

Choose and study one play from the recommended titles included in the list, list, Grade X Shakespearean Plays. See Section F of the *Secondary Language Arts Handbook*.

F.— Poetry

Eckersley, Wm. *Impact*. Don Mills, Ontario: J. M. Dent and Sons, Ltd. 1968.

or

McLuhan, M. and R. J. Shoeck. *Voices of Literature, Book I*. Toronto: Holt, Rinehart and Winston, 1969.

ENGLISH 23

Introduction

English 23 is a 5 credit course for non-matriculation students. The course places an emphasis upon all forms of communication.

Course Content and Recommended Texts

A.— Literature (General)

Lynn. *The Range of Literature*. Fiction. Don Mills, Ontario: Thomas Nelson and Sons (Canada) Ltd., 1969.

Worsnop. *What Do You Think?* Toronto: Copp Clark Publishing Co., 1969.

Hogan. *Poetry of Relevance, Book 2*. Toronto, Ontario: Methuen Publications, 1970.

B.— Drama

One or more plays from the recommended titles included in the following lists:

1. Grade XI Plays

2. Grade XI Shakespearean Plays

See Section F of the *Secondary Language Arts Handbook*.

C.— The Novel

One or more from the recommended titles included in the list, Grade XI Novels. See Section F of the *Secondary Language Arts Handbook*.

D.— Non-Fiction (Optional)

Select one or more titles from the list entitled, Grade XI Non-Fiction, in Section F of the *Secondary Language Arts Handbook*.

ENGLISH 20

Introduction

English 20 is a 5 credit matriculation course which correlates the language and literature skills in prose, poetry and drama.

Course Content and Recommended Texts

A.— Prose

1. The Short Story

A minimum of ten.

Buxton, E. W. *Prose for Discussion*. Gage, 1968.

B.— The Essay

A minimum of ten.

Buxton, E. W. *Prose for Discussion*. Gage, 1968.

C.— The Novel

One or more novels from the recommended titles included in the list, Grade XI Novels. See Section F of the *Secondary Language Arts Handbook*.

D.— Poetry

Perrine, Laurence. *Sound and Sense*. (Second Edition). Harcourt, Brace and World, Inc.

E.— Drama (One from Section (1) or (2) to be studied):

1. Modern Drama

Study one play from the recommended titles include in the list, Grade XI Plays.

2. The Shakespearean Drama

Study one Shakespearean drama from the recommended titles in the list, Grade XI Shakespearean Plays. See Section F of the *Secondary Language Arts Handbook*.

If time and student interest permit, study one or more of the publications included in the recommended list, Grade XI Non-Fiction. See Section F of the *Secondary Language Arts Handbook*.

F. — Non-Fiction (Optional)

If time and student interest permit, study one or more of the publications included in the recommended list, Grade XI Non-Fiction. See Section F of the *Secondary Language Arts Handbook*.

G.— Language

Ford, Margaret. *Techniques of Good Writing*. Agincourt, Ontario: The Book Society of Canada.

ENGLISH 33

Introduction

English 33 is a 5 credit course which is designed for Grade XII students who do not seek matriculation standing. The emphasis should be upon the improvement of fundamental reading and language skills.

Course Content and Recommended Texts

A.— Short Stories and Essays

1. Scheld, Elizabeth. *Designs in Fiction*. Literary Heritage Series. Don Mills, Ontario: Collier-MacMillan Canada Ltd., 1968.
2. Reinert, Otto. *Working with Prose*. New York: Harcourt, Brace and World, Inc. (Longman Canada Ltd.), 1959.

B.— Novels

One or more from the recommended titles included in the list, Grade XII Novels. See Section F of the *Secondary Language Arts Handbook*.

C.— Drama

One or more plays to be chosen from the recommended titles included in the following lists:

1. Grade XII Plays

2. Grade XII Shakespearean Plays

See Section F of the *Secondary Language Arts Handbook*.

D.— Non-Fiction (Optional)

Select one or more titles from the list entitled, Grade XII Non-Fiction, in Section F of the *Secondary Language Arts Handbook*.

ENGLISH 30

Introduction

English 30 is a 5 credit course designed for students seeking matriculation.

Course Content and Recommended Texts

A.— Short Stories

Text: Perrine, Laurence. *Story and Structure*. New York: Harcourt, Brace and World, Inc., 1966.

Teacher and class will select a minimum of ten stories for class discussion and independent reading by students.

B.— Essays

Text: Perrine, Laurence. *Story and Structure*. New York: Harcourt, Brace and World, Inc., 1966.

Teacher and class will select a minimum of ten stories for class discussion and independent reading by students.

B.— Essays

Text: Buxton, et al. (Editors). *Points of View*. Scarborough, Ontario: Gage, 1967.

Teacher and class will select a minimum of ten essays for class discussion and independent reading by students.

C.— Poetry

1. Text: Charlesworth and Lee (Editors). *An Anthology of Verse*. Toronto: Oxford University Press, 1964.

A number of poems to be selected for class discussion and independent reading.

2. From the following sources, one or more poets to be studied in depth:

- (a) Leggett, Glen (Editor). 12 *Poets*. New York: Rinehart and Company, 1958, **or** Shakespeare, Donne, Pope, Wordsworth, Keats, Browning, Emily Dickinson, Housman, Yeats, E. A. Robinson, Frost, T. S. Eliot.

Introduction and notes on each poet in the following:

- (b) Chaucer: *Canterbury Tales* (Croft Classics)
(c) Coleridge: *Selected Poems* (Croft Classics)
(d) Donne: *Selected Poems* (Croft Classics)
(e) Keats: *Selected Poems* (Croft Classics)
(f) Tennyson: *Selected Poems* (Croft Classics)
(g) Hopkins: *Selected Poems and Prose* (Penguin)
(h) Cummings, E. E. *Selected Poems* (Faber)
(i) Shakespeare: *Renaissance Poetry* (Prentice Hall)
(j) *Poets of Mid Century* (Macmillan)

D.— Novels

One or more publications from the recommended titles included in the list, Grade XII Novels. See Section F of the *Secondary Language Arts Handbook*.

E.— Modern Drama

One or more plays from the recommended titles included in the list, Grade XII Plays. See Section F of the *Secondary Language Arts Handbook*.

F.— Shakespearean Drama

One or more Shakespearean plays from the recommended titles included in the list, Grade XII Shakespearean Plays.

G.— Non-Fiction (Optional)

If time and interest permit, study one or more of the recommended titles included in the list, Grade XII Non-Fiction. See Section F of the *Secondary Language Arts Handbook*.

H.— Language

Corbin, Perrin and Buxton. *Guide to Modern English*. Scarborough, Ontario: Gage, 1959.

ELECTIVES

READING 10

(See the Reading 10 Curriculum Guide.)

COMMUNICATIONS 21A and 21B

Introduction

Communications 21A and 21B are offered in module form for three credits each. A maximum of six credits is available to a student taking modules in the Communications Elective.

The Communications modules subscribe to the major objectives as stated in the *Secondary Language Arts Handbook*. All modules focus on the basic skills of writing, reading, viewing, listening, speaking and acting as well as providing for student involvement, excitement and enjoyment. In the Communication modules, emphasis has been placed on the improvement in writing skills as an ongoing process.

Course Content

Choice can be made from fifteen modules. Credit value is shown after each module:

- Business Communications (3 or 6 — Part A prerequisite to Part B)
- Community Relations Network (3 or 6)
- English As A Second Language (6)
- Film (3 or 6 — Part A prerequisite to Part B)
- How, What and Why of Writing (3 or 6 — Part A *not* prerequisite to Part B)
- Journalism (3 or 6 — Part A prerequisite to Part B)
- Language As A Manipulative Device (3 or 6 — Part A prerequisite to Part B)
- Language Growth (3 or 6)
- Plain Speaking (3)
- Purposeful Speaking (3)
- Radio (3)
- Speeded Comprehension (3)
- Television (3 or 6 — Part A prerequisite to Part B)
- Thinking — The Core of Communication (3 or 6 — Part A prerequisite to Part B)
- Writer's Workshop (3 or 6 — Part A *not* prerequisite to Part B)

Recommended Material

A number of references are suggested for each module, but no textbooks are prescribed. Refer to the *Secondary Language Arts Handbook* for a list of these materials.

LITERATURE 21A and 21B

Introduction

Literature 21A and 21B are offered in module form for three credits each. A maximum of six credits is available to a student taking modules in the Literature Elective. Any two Literature modules are taken for three credits or any four modules for six credits. However, student-teacher enthusiasm could lead to one module being developed to produce three credits.

The Literature modules subscribe to the major objectives as stated in the *Secondary Language Arts Handbook*. All the modules focus on the basic skills of writing, reading, viewing, listening, speaking and acting as well as providing for student involvement, excitement, and enjoyment. In the Literature modules emphasis has been placed on the improvement in writing skills as an ongoing process.

Course Content

Choice can be made from twenty modules:

- | | |
|-------------------|---|
| Modules 1 to 6: | Novels (Adventure and Mystery; American; British; Canadian; Recent Best Sellers; Twentieth Century). |
| Modules 7 and 8: | Poetry (Canadian; Modern) |
| Modules 9 to 12: | Drama (Drama in Three Media: Television Drama; Shakespearian Survey: The Plays; A Shakespearian Play in Depth) |
| Modules 13 to 20: | Others (Africa's Contemporary Authors; Canadiana: Short Story and Humor; Children's Literature; Concepts of the Future; Native Canadian Literature; The Romantic Mind; Science Fiction — That Untravelled World; Tolkien, Fantasy and Folk-Tale). |

Recommended Material

A number of references are suggested for each module, but no textbooks are prescribed. Refer to the *Secondary Language Arts Handbook* for a list of these materials.

LANGUAGES OTHER THAN ENGLISH

Introductory Statement

A language other than English may be implemented in the junior high school grades, either as a Group A option or as a Group B option. As a Group B option, it should respect the principles underlying this classification as outlined in the *Junior Senior High School Handbook*. The implementation of a Group B option will vary from school to school dependent upon the personnel and material resources available.

However, when offered to interested students as a Group A option, its effectiveness in achieving significant proficiency in language learning by these students will depend upon, among other factors, the provision of ample time, frequently scheduled instructional periods and planned articulation. A sequential program, beginning at either the elementary school or at the junior high school and continuing on to senior high school, is a prerequisite to any real proficiency in the language studied.

For students in Alberta schools, progress in language development is suggested for each of three LEVELS of language acquisition. A LEVEL of language proficiency is defined as a set of behaviours which includes knowledge of language content and performance in terms of linguistic and attitudinal change. Although a LEVEL may be equated in a general way with a "year" or "years" of learning, or even with "grades", the term, as used in the PROGRAM OF STUDIES, indicates a student's level of linguistic development rather than his year of study or grade placement.

LEVEL ONE is defined as an *initial* learning experience in a second language. Students may complete LEVEL ONE or more at the end of a three-year junior high program or its equivalent. Students who begin their study of a second language in senior high school are expected to complete LEVEL ONE at the end of one year of language study. Students who have studied a language for one year only in senior high school, however, cannot be expected to have attained the same degree of fluency as students who have been exposed to the language for longer periods of time in the junior high school.

LEVEL TWO is defined as an *intermediate* learning experience in a second language. Students will normally complete LEVEL TWO at the end of two sequential years of senior high school study following the successful completion of LEVEL ONE.

LEVEL THREE then becomes an *advanced* learning experience in which students are encouraged to increase their language proficiency and cultural understanding. Students will pursue the study of a second language at this LEVEL after successfully completing LEVEL TWO.

Curriculum guides have been prepared for French, German and Ukrainian, in order to help school systems which choose to offer a second language in the junior high grades to plan a sequential program of learning activities. The curriculum outlines in these documents suggest language content and expected linguistic and attitudinal behaviours for each LEVEL of language learning.

Students who have successfully completed a second language program in the junior high school should be placed in a senior high school program which takes into account both achievement and the amount of time during which the student was exposed to the target language. In many schools it is suggested that students be placed in French 20, German 20 or Ukrainian 20 if the minimum requirements of LEVEL ONE have been satisfied in the junior high grades. For other schools, where students have been exposed to longer sequences of French language learning, it is strongly recommended that students register in French 11 when it is offered.

GOALS AND OBJECTIVES

In the study of modern languages the long range goals are cultural understanding and effective communication. Achievement of these goals exclusively in a school setting is unrealistic. The development of cultural understanding and linguistic proficiency is a complex process involving a variety of language experiences and exposure to the culture of the people whose language is being studied. It is desirable, however, that in a school program some progress be made towards realization of the more specific goals outlined below.

A. Cultural Objectives

The student should be able:

1. To understand the values and behaviour patterns of the people whose language is being studied.
2. To appreciate the contributions made to civilization by these people.

B. Linguistic Objectives

1. To understand the structure and functioning of the language being studied.
2. To apply this knowledge to the acquisition of skills needed:
 - (a) To understand the language when spoken at a normal speed on a subject within the range of a student's linguistic experience and areas of interest.
 - (b) To speak the language well enough to communicate in it within the limitations mentioned above.
 - (c) To read in the target language with direct understanding for information and enjoyment.
 - (d) To write with reasonable ease anything he can say in the language.

FRENCH AS A SECOND LANGUAGE

Suggested Expectations For French At The End of Level One

The curriculum outline included on pages 8 - 27 of the curriculum guide¹ identifies the language content to which students will be exposed during LEVEL ONE, and it suggests the linguistic and attitudinal behaviours expected of students at the end of this level of language learning.

LEVEL ONE is considered to be an *initial* experience in learning the French language and it may occur at any grade(s) of the student's career in the secondary school. The attainment of LEVEL ONE proficiency may occur in a variety of ways, such as the successful completion of:

- a. a three-year program in the junior high school,
- b. a two-year program in the junior high school, equivalent in time exposure to three years of study,
- c. a one-year program in the senior high school, during which students learn the concepts and develop the skills and attitudes suggested for LEVEL ONE.

¹*French as a Second Language, Tentative Curriculum Guide, Levels 1, 2 and 3 (Secondary), 1974.*

The successful completion of LEVEL ONE by a student should result in his subsequent placement in a LEVEL TWO program, i.e. French 20. **In schools where the students have been exposed to more than the core content required of LEVEL ONE, it is suggested that students register in French 11 when it is offered.**

Suggested Expectations For French At The End of Level Two

The curricular outline included on pages 29-38 of the curriculum guide² identifies the language content to which students will be exposed during the *intermediate* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that LEVEL.

This *intermediate* LEVEL is considered to be LEVEL TWO. The completion of LEVEL TWO should be equated with successful achievement in French 20 and French 30. **In schools where French 11 and 21 are offered, LEVEL TWO is considered to be equivalent to the successful completion of these two courses.**

Note: At the end of LEVEL TWO students are expected to have mastered the vocabulary of *Le Francais Fundamental, Premier Degre*³ along with the language content suggested for LEVEL TWO in the curriculum guide.

Suggested Expectations For French At The End of Level Three

The curricular outline included on pages 40-43 of the curriculum guide⁴ identifies the language content to which students will be exposed during the *advanced* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that level.

The *advanced* LEVEL is considered to be LEVEL THREE and its implementation as a course should reflect an emphasis on cultural understanding and an appreciation of the way of life of French-speaking peoples, especially those living in Canada, rather than an exclusive focus on the continued development of linguistic skills. **French 31 is the course to be implemented at LEVEL THREE.** Either French 21 or French 30 is a prerequisite or corequisite for French 31.

French 31

French 31 is intended to further the objectives suggested for the learning of a second language, namely cultural understanding and effective communication. French 30 is a prerequisite or a corequisite of French 31, although in schools where French 11 and French 21 are available, it will be offered to students who have successfully completed French 21.

The language content and the linguistic and attitudinal behaviours outlined in LEVEL THREE of the curriculum guide contain the basic core suggested for the *advanced* program in French.

Principles, guidelines and suggested instructional materials for implementing French 31 are included in the document entitled *French 31, Supplement to French as a Second Language*, Tentative Curriculum Guide, 1974, Levels 1, 2 and 3 (Secondary).

²*French as a Second Language.*

³ Available from The School Book Branch.

⁴*French as a Second Language.*

GERMAN AS A SECOND LANGUAGE

Suggested Expectations For German At The End of Level One

The curricular outline included on pages 7-16 of the curriculum guide⁵ identifies the language content to which students will be exposed during LEVEL ONE, and it suggests the linguistic and attitudinal behaviours expected of students at the end of this level of language learning.

LEVEL ONE is considered to be an *initial* experience in learning the German language and it may occur at any grade(s) of the student's career in the secondary school. The attainment of LEVEL ONE proficiency may occur in a variety of ways, such as the successful completion of:

- a. a three-year program in the junior high school,
- b. a two-year program in the junior high school, equivalent in time exposure to three years of study,
- c. a one-year program in the senior high school, during which students learn the concepts and develop the skills and attitudes suggested for LEVEL ONE.

The successful completion of LEVEL ONE by a student should result in his subsequent placement in a LEVEL TWO program, i.e. German 20.

Suggested Expectations For German At The End of Level Two

The curricular outline included on pages 17-23 of the curriculum guide⁶ identifies the language content to which students will be exposed during the *intermediate* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that LEVEL.

This *intermediate* LEVEL is considered to be LEVEL TWO. The completion of LEVEL TWO should be equated with successful achievement in German 20 and German 30.

Suggested Expectations For German At The End of Level Three

The curricular outline included on pages 24-27 of the curriculum guide⁷ identifies the language content to which students will be exposed during the *advanced* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that level.

The *advanced* LEVEL is considered to be LEVEL THREE and its implementation as a course should reflect a greater concern for cultural understanding and an appreciation of the German way of life rather than an exclusive focus on the continued development of linguistic skills. **German 31 is the course to be implemented at LEVEL THREE.** German 30 is a prerequisite or corequisite for German 31.

⁵*German as a Second Language, Tentative Curriculum Guide, Levels 1, 2 and 3 (Secondary), 1974.*

⁶*Ibid.*

⁷*Ibid.*

German 31

German 31 is intended to further the objectives suggested for the learning of a second language, namely cultural understanding and effective communication. German 30 is a prerequisite or corequisite for German 31.

The language content and the linguistic and attitudinal behaviours outlined in LEVEL THREE of the curriculum guide contain the basic core suggested for the *advanced* program in German.

Principles, guidelines and suggested instructional materials for implementing German 31 are included in the document entitled *German 31, Supplement to German as a Second Language*, Tentative Curriculum Guide, 1974, Levels 1, 2 and 3 (Secondary).

UKRAINIAN AS A SECOND LANGUAGE

Suggested Expectations For Ukrainian At The End of Level One

The curricular outline included on pages 4-15 of the curriculum guide⁸ identifies the language content to which students will be exposed during LEVEL ONE, and it suggests the linguistic and attitudinal behaviours expected of students at the end of this level of language learning.

LEVEL ONE is considered to be an *initial* experience in learning the Ukrainian language and it may occur at any grade(s) of the student's career in the secondary school. The attainment of LEVEL ONE proficiency may occur in a variety of ways, such as the successful completion of:

- a. a three-year program in the junior high school,
- b. a two-year program in the junior high school, equivalent in time exposure to three years of study,
- c. a one-year program in the senior high school, during which students learn the concepts and develop the skills and attitudes suggested for LEVEL ONE.

The successful completion of LEVEL ONE by a student should result in his subsequent placement in a LEVEL TWO program, i.e. Ukrainian 20.

Suggested Expectations For Ukrainian At The End of Level Two

The curricular outline included on pages 16-25 of the curriculum guide⁹ identifies the language content to which students will be exposed during the *intermediate* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that LEVEL.

This *intermediate* LEVEL is considered to be LEVEL TWO. The completion of LEVEL TWO should be equated with successful achievement in Ukrainian 20 and Ukrainian 30.

⁸*Ukrainian as a Second Language*, Tentative Curriculum Guide, Levels 1, 2 and 3 (Secondary), 1974.

⁹*Ibid.*

Suggested Expectations For Ukrainian At The End of Level Three

The curricular outline included on pages 26-32 of the curriculum guide¹⁰ identifies the language content to which students will be exposed during the *advanced* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that level.

The *advanced* LEVEL is considered to be LEVEL THREE and its implementation as a course should emphasize a concern for understanding the Ukrainian way of life as well as improving the skills previously acquired. **Ukrainian 31 is the course to be implemented at LEVEL THREE.** Ukrainian 30 is a prerequisite or corequisite for Ukrainian 31.

Ukrainian 31

Ukrainian 31 is intended to further the objectives suggested for the learning of a second language, namely cultural understanding and effective communication. Ukrainian 30 is a prerequisite or corequisite for Ukrainian 31.

The language content and the linguistic and attitudinal behaviours outlined in LEVEL THREE of the curriculum guide contain the basic core suggested for the *advanced* program in Ukrainian.

Principles, guidelines and suggested instructional materials for implementing Ukrainian 31 are included in the document entitled *Ukrainian 31, Supplement to Ukrainian as a Second Language, Tentative Curriculum Guide, 1974, Levels 1, 2 and 3 (Secondary).*

RECOMMENDED INSTRUCTIONAL MATERIALS

The outlines of language content and linguistic and attitudinal behaviours for LEVELS ONE and TWO in each of the curriculum guides for French, German and Ukrainian contain the basic core suggested for an *initial* and *intermediate* program in these languages. The language content core, for the most part, is found within the units and lessons suggested below for each of the recommended instructional materials.

In schools where students continue into French 11 and French 21, it is recommended that students be exposed to more than this suggested core, and that they be given opportunities to develop greater fluency in French than if they were to continue with French 20 and French 30.

No core is suggested for French 11 and French 21, but students completing French 11 should have been exposed to a core at least equivalent to French 20, while students in French 21 should have been exposed to a core at least equivalent to French 30. It is also expected that students having completed French 21 will be more proficient in French than students having completed French 30.

French As A Second Language

| | |
|--|------------------|
| | French 10 |
| A-LM Level I (Revised Edition) | Units 1-9 |
| or | |
| <i>Ecouter et Parler</i> (Revised Editon 1970) | Units 1-8 |
| or | |
| <i>Voix et Images de France, Premier Degré</i> | Lessons 1-10 |

¹⁰*Ukrainian as a Second Language,*

| | |
|--|---------------------------------------|
| A-LM Level I (Revised Edition) | French 20 |
| and | Units 10-15 |
| A-LM Level II (Revised Edition) | Units 16-18 |
| or | |
| <i>Ecouter et Parler</i> (Revised Edition 1970) | Units 9-16 |
| or | |
| <i>Voix et Images de France</i> , Premier Degré | Lessons 11-21 |
| | French 30 |
| A-LM Level II (Revised) | Units 19-26 |
| or | |
| <i>Chez les Français</i> | Chapitres 1-10 |
| or | |
| <i>Voix et Images de France</i> , Premier Degré | Lessons 22-32 |
| (See also "Additional Resources", page 156) | |
| German As A Second Language | |
| | German 10 |
| A-LM, Level One (Second Edition) | Units 1-9 |
| or | |
| * <i>Verstehen and Sprechen</i> (1962) | Lessons 1-12 |
| or | |
| <i>Verstehen und Sprechen</i> (1970) | |
| | German 20 |
| A-LM Level One (Second Edition) | Units 10-15 |
| and | |
| A-LM, Level Two (Second Edition) | Units 16-18 |
| or | |
| * <i>Verstehen and Sprechen</i> (1962) | Lessons 12-20 |
| or | |
| <i>Verstehen und Sprechen</i> (1970) | |
| and | |
| <i>Sprechen und Lesen</i> (1963) | Chapters 1-8 |
| or | |
| <i>Foundation Course in German</i> (Revised Edition) | Units 1-13 and Review Lessons 1 and 2 |
| | German 30 |
| A-LM, Level Two (Second Edition) | Units 19-27 |
| or | |
| <i>Foundation Course in German</i> (Revised Edition) | Units 14-25 Review Lessons 3 and |
| (See also "Additional Resources", page 156.) | |

* Limited supply.

Ukrainian As A Second Language

Ukrainian 10

Ukrainian by the Audio-Visual Method,
Part I

Lessons 1-14

or

Ukrainian for Beginners and Conversational
Ukrainian

Lessons 1-12

Ukrainian 20

Ukrainian by the Audio-Visual Method,
Part I

Lessons 15-25

or

Conversational Ukrainian and
appropriate supplementary materials

Lessons 13-24

Ukrainian 30

Conversational Ukrainian and appropriate
involvement and support materials

Lessons 25-35

(See also "Additional Resources" below.)

ADDITIONAL RESOURCES

In order to encourage students to meet the expectations suggested for LEVEL ONE, TWO and THREE, teachers are invited to select and adopt from the instructional materials listed above, and to provide for a wide variety of supplementary resource materials. A selection of resource materials for French, German and Ukrainian has been identified in the following publications:

Resource Materials — A Listing Prepared for Teachers of French as a Second Language (Secondary) 1974.

Resource Materials — A Listing Prepared for Teachers of German as a Second Language (Secondary) 1974.

Resource Materials — A Listing Prepared for Teachers of Ukrainian as a Second Language (Secondary) 1975.

LATIN

Objectives

The specific objective of a program in any second language is to enable the learner to acquire a proficiency in a language other than his tongue. For the study of Latin, this takes the form of gaining proficiency in:

- (a) Reading and understanding Latin.
- (b) Learning more about his own language.
- (c) Learning about the ancient world and its values.
- (d) Comparing and contrasting his own values with those of the ancient world.
- (e) Appreciating the immense contribution of Latin to the English vocabulary.

A. SUGGESTED COURSE CONTENT IN THE JUNIOR HIGH SCHOOL GRADES

Text

Page and Beckett. *Gateway to Latin, I and II*. At the end of the Junior High School Latin program it is suggested that the students complete all of Gateway to Latin I and the first sixteen chapters of Gateway to Latin II.

B. SUGGESTED COURSE CONTENT IN THE SENIOR HIGH SCHOOL GRADES

Latin 10

Text

Breslove and Hooper. *Latin for Canadian Schools*.

Suggested Course Content

Lessons 1-27 inclusive; the last exercises in each lesson need not be emphasized, but knowledge is essential of: the first three declensions of nouns; the cases of nouns and their functions; the three declensions of adjectives; the four conjugations in the active in all tenses of the indicative, the imperative, the infinitive; questions; connectives, subordinate clause with ubi, antequam, priusquam, simulat que, cum primum, dum, si nisi and cum; prepositions; place and time expressions.

Latin 20

Text

Breslove and Hooper. *Latin For Canadian Schools*.

Suggested Course Content

Lessons 28-55 inclusive; the last exercises in each chapter need not be emphasized. Derivative studies should be done orally. Relative, interrogative, demonstrative, reflexive and intensive pronouns should be taught for reading recognition and use rather than have the students memorize the paradigms.

Latin 30

Text

Breslove and Hooper. *Latin for Canadian Schools*.

Suggested Course Content

Lessons 56-78 inclusive. The English to Latin should be reduced to a minimum: omit recall and grammatical work on adverbs of place, compounds of fero, and subordinate clauses in indirect discourse.

NOTE:

The Breslove and Hooper text is satisfactory for studying the core material in grammar, but in order to allow flexibility in the Latin Program, it is suggested that teachers be encouraged to utilize a large number of resource materials which emphasize the development of reading comprehension. In addition to the text, Latin readings in the following are examples recommended for this purpose, but this list is not exclusive. Of these, only *Selected Latin Readings* by Taylor and Prentice may be obtained through the School Book Branch. The others are available through the publishers only.

Selected Latin Readings — B. C. Taylor and K. E. Prentice. Dent
Using Latin — J. Gunmere. Longman
Lingua Latina — H. O. Oerberg. Nature Method Language Institute (110
 East 42 Street, New York) (Vol. I and II)
Civis Romanus — J. M. Cobban and R. Colebourne. Methuen
Sodales Duo — A. O. Nash-Williams. Cambridge University Press
First Year Latin — C. Jenny. Macmillan
Romani Apud Se — G. C. Lightfoot. Macmillan
Elementary Latin Translation Book — Rev. A. E. Hallard. Copp Clark
Tironibus — G. M. Lyne. Edward Arnold, London, England
Balbus — G. M. Lyne. Edward Arnold, London, England
First Reading Book — G. M. Lyne. Edward Arnold, London, England
Collins' Latin Dictionary — Collins. Toronto

NOTE:

1. Students who have successfully completed the minimum content suggested for the Junior High School Latin program should register in Latin 20.
2. Teachers who are recommending students for Latin 20 should ensure that the suggested course content for Latin 10 as outlined in the Program of Studies has been completed.

MATHEMATICS

Objectives

While the different programs in mathematics have different specific objectives, the common general purposes of Senior High School mathematics courses are as follows:

1. To develop an understanding of mathematics as a creation of man and to develop an appreciation of the contribution of this discipline to the progress of civilization.
2. To develop precision in thought and expression.
3. To develop and maintain an understanding of the operations and concepts of mathematics.
4. To develop and maintain skill in mathematical operations.
5. To develop powers of logical analysis of problems and of presenting their solution in a clear and precise manner.

Mathematics 10, 20, 30, 31

This sequence of courses is designed for students in the academic pattern. The content is such that successful students may enter the university or a technical institute. These courses also contribute to general education.

MATHEMATICS 10

Recommended Texts

1. Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern, Intermediate Algebra*. Revised edition. Holt, Rinehart and Winston of Canada Ltd., 1969.
2. Wilcox, Marie S. *Geometry, A Modern Approach*. Addison-Wesley Publishing Company, 1968.

Objectives

1. To assist the student in the reasoning, discovery, and justification of algebraic processes through basic properties.
2. To encourage students to discover mathematical truths and patterns for themselves.
3. To review the concept of proof.
4. To develop the ability to write deductive proofs.

Course Outline

The topics listed below should comprise the basic outline for Mathematics 10. The teacher should feel free to supplement these with additional topics if he so desires. Teachers should consult the curriculum guide for additional references and suggestions.

A. Extension of Real Numbers

1. Natural numbers, integers, rational numbers
2. Rational numbers and decimal numerals
3. The system of real numbers
4. Properties of addition and multiplication in the set of real numbers

5. Additional properties of the real number system: is equal to, is less than, order, density
6. Equations and inequalities
7. Absolute value.

B. Algebra

1. Exponents and radicals
2. Operations on polynomials
3. Special products, factoring
4. Solving polynomial inequalities
5. Rational expressions — simplification
6. Rational expressions in open sentences.

C. Coordinate Geometry

1. Coordinate systems: line, plane
2. Distance, midpoints of segments, slope, parallel and perpendicular lines, proofs, special forms for equations of lines.

D. Geometry

1. Definitions: space, betweenness, segment, ray, angle, bisection, midpoint, perpendicular lines, linear pair, etc.
2. Postulates — existence, congruence of triangles, etc.
3. Proof — analogy, induction, deduction, implication, truth — values of statements
4. Theorems involving: congruent segments, angles and triangles, right angles, supplements of congruent angles, vertical angles, isosceles triangles, perpendicular bisectors, addition of segments and angles, exterior angles, parallel lines, measure of the angles of a triangle, right triangles.

MATHEMATICS 13

Text

Dean, J. E., and W. Ronald Graham. *Principles of Mathematics*. Book I. Holt, Rinehart and Winston of Canada, Ltd., 1969.

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach
2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts.
3. To develop powers of analyzing problems and presenting solutions in a clear manner
4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

The following topics indicate a suggested program of mathematics. Specific topics as they relate to chapters from a textbook are not indicated and teachers may use appropriate materials that appear to fit the interests, needs and abilities of their students. In cases where students follow the Mathematics 13, 23 sequence, attention should be given to those topics in Mathematics 13 that are prerequisite to Mathematics 23. The Curriculum Guide lists additional resource materials.

A. Descriptive Statistics

1. Definition, significance and relevance of statistics in modern society
2. Operations with significant digits and approximate numbers
3. Measures of central tendency
4. Applications

B. Geometry

1. Angles
2. Congruency
3. Similarity
4. Polygons: areas, polygonal regions
4. Parallel lines
6. Pythagorean Theorem

C. Trigonometry

1. Triangle similarity; Pythagorean Theorem
2. Angle measurement
3. Trigonometric ratios
4. Applications

D. Algebra

1. Fundamental operations — polynomials
2. Factoring
3. Fundamental operations — rational expressions
4. Exponents, scientific notation
5. Real Number Plane: Structure, graphs of linear equations, graphs of linear systems
6. Algebraic solution of linear systems
7. Relations, variation

MATHEMATICS 20

Recommended Texts

1. Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern Intermediate Algebra*. Revised edition. Holt, Rinehart and Winston of Canada, Ltd., 1969.
2. Wilcox, Marie S. *Geometry, A Modern Approach*. Addison-Wesley Publishing Company, 1968.

Objectives

1. To extend the students' understanding of algebraic processes
2. To develop understanding and skill in the use of relations, and linear, quadratic, exponential and logarithmic functions
3. To encourage students to discover mathematical truths and patterns for themselves
4. To extend geometrical concepts to include circles, polygons, proportion and space geometry.

Course Outline

The topics listed below should comprise the minimum course for Mathematics 20. Teachers should consult the Curriculum Guide for teaching suggestions and a list of teacher references.

I. Algebra

- A. **Relations and Functions:** Functional notation, composition of functions, inverse relations and functions, proportion.
- B. **Quadratic Functions:** The general quadratic function, completing the square, applications.
- C. **Quadratic Equations and Inequalities:** Quadratic formula, properties of roots, fractional and radical equations, quadratic inequalities.
- D. **Complex Number System:** Properties of the complex numbers; quadratic equations with complex solutions.
- E. **Solution Sets of Systems:** Independent, inconsistent and dependent systems, comparison, substitution and addition methods of solving systems of equations.
- F. **Logarithmic Functions:** Scientific notation, approximating products, quotients, powers and roots, exponential equations, change of base.

II. Geometry

- A. **Quadrilaterals:** Parallelograms, Right Triangle Theorem, Triangle Inequalities.
- B. **Space Geometry:** Lines and planes in space, perpendicularity and parallelism in lines and planes, distance in space, dihedral angles.
- C. **Ratio, Proportion, Similarity:** Proportionality, proportional segments, similar triangles, square root, geometric mean, Pythagorean Theorem.
- D. **Circles and Spheres:** Tangents, chords, arcs, secants.

MATHEMATICS 23

Text

Dean, J. E., and W. Ronald Graham. *Principles of Mathematics*, Book II. Holt, Rinehart and Winston of Canada, Ltd., 1969.

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach
2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts
3. To develop powers of analyzing problems and presenting solutions in a clear manner
4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

The following general topics indicate the program in Mathematics. See the Curriculum Guide for additional useful materials.

A. Algebra

1. The set of real numbers

2. Exponents, radicals, logarithms
3. The slide rule
4. Quadratic equations
5. Equation systems: Inequalities, linear programming
6. Applications

B. **Geometry**

1. Nomenclature and relationships of the circle

C. **Trigonometry**

1. Six basic trigonometric functions
2. Trigonometric functions of special and quadrantal angles
3. Graphs
4. Applications

D. **Probability**

MATHEMATICS 15 - 25

Specific Objectives

1. To revitalize interest in mathematics through successful experiences at the student's level of understanding and through the use of novel approaches.
2. To extend the student's knowledge of mathematical operations and his ability to apply these.
3. To develop an understanding of the skills and knowledge necessary to cope with the problems of the consumer.

MATHEMATICS 15

Recommended Text

Saake, T. F. & B. Conchie. *Mathematics of Consumer Studies*. Addison-Wesley, Don Mills, 1975.

Course Outline

The following topics should be considered as a suggested list only. Teachers should feel free to modify the program to suit the needs and interests of their students. Such modification may include the deletion and/or addition of some topics. In cases where students will follow the Mathematics 15, Mathematics 25 sequence, attention should be given to those topics of Mathematics 15 which are considered as desirable preparation for Mathematics 25. Not all topics listed are treated in the recommended text. Teachers should consult the Curriculum Guide for resource materials.

A. **Numeration Systems.**

B. **Basic Algebra**

1. Natural numbers, integers, fractions (common and decimal) and rational numbers.
2. Ratio and proportion
3. Equations
4. Problem solving through equations
5. Graphing

C. Geometry

1. Measurement
2. Similarity
3. Congruence

D. Probability and Statistics

E. Business Mathematics

1. Profit and loss
2. Banking services
3. Interest

MATHEMATICS 25

Recommended Text

Saake, T. F. & B. Conchie. *Mathematics of Consumer Studies*. Addison-Wesley, Don Mills, 1975.

Course Outline

The following topics should be considered as a suggested list only. Teachers should feel free to modify the program to suit the needs and interests of their students. Such modification may include the deletion and/or addition of some topics. Not all topics listed are treated in the recommended text.

A. Management of Personal Property

1. Consumer Credit
2. Payroll and Commissions
3. Taxation
4. Automobile
5. Insurance
6. Budgeting
7. Stocks, bonds and investments
8. Real Estate

B. Application of Mathematics Principles* to

1. Construction
2. Sheet Metal
3. Electricity
4. Food Preparation
5. Machine Shop
6. Agriculture

MATHEMATICS 30

Recommended Texts

Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern Intermediate Algebra*. Revised edition. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1969.

Vance, Elbridge P., Booklet: *Mathematical Induction-Conic Sections*. Don Mills, Ontario, Addison-Wesley Publishing Company, 1971.

* Teachers should use their discretion in utilizing basic concepts of algebra, geometry, and trigonometry in presenting this unit.

Teachers' References

- 1. Elliott, H. A., K. D. Fryer, J. C. Gardner, N. J. Hill. *Algebraic Structures and Probability*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1966.
- 2. Elliott, H. A., K. D. Fryer, J. C. Gardner, N. J. Hill. *Functions, Relations, and Transformations*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1966.
- 3. Vance, Elbridge P., *An Introduction to Modern Mathematics*, Second Edition, Don Mills, Ontario: Addison-Wesley Publishing Co. 1968.

Course Outline

The topics listed below comprise the basic outline for Mathematics 30. The teacher should feel free to use supplementary materials to aid in the teaching of these topics and should consult the curriculum guide for additional references.

- 1. Trigonometric Functions and their Applications
- 2. Vectors
- 3. Sequences, Series and Limits
- 4. Binomial Theorem
- 5. Permutations and Combinations
- 6. Probability Functions
- 7. Polynominal Functions
- 8. Conic Sections
- 9. Mathematical Induction

MATHEMATICS 31

NOTE: Mathematics 31 is made up of two parts -- (1) Calculus AND (2) Vectors and Matrices.

Calculus

Texts

Either

Elliott, H. A., D. Fryer, J. C. Gardner and N. J. Hill. *Calculus*. Toronto: Holt, Rinehart and Winston of Canada, 1966.

or

Elliott et al. *Calculus, Complex Numbers and Polar-Coordinates*. Toronto: Holt, Rinehart and Winston, 1974.

Teachers' References

Elliott et al. *Solutions for Calculus*.
Lang, S. *Calculus*. Addison-Wesley.

Course Content

- | | |
|--|-------------|
| 1. Slopes and Tangents | (Chapter 1) |
| 2. Distance, Velocity and Acceleration | (Chapter 2) |
| 3. Maxima and Minima | (Chapter 3) |
| 4. Sequences, Limits and Derivatives | (Chapter 4) |
| 5. Derivatives of Functions | (Chapter 5) |
| 6. Tangents, Derivatives and Graphs | (Chapter 6) |
| 7. Further Applications of Derivatives | (Chapter 7) |
| 8. Solutions of $D_x y = f(x)$ | (Chapter 8) |
| 9. Areas | (Chapter 9) |

Vectors and Metrics

Texts

Either

Elliott et al. *Vectors and Matrices*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1967.

or

Elliott et al. *Vectors, Matrices and Algebraic Structures*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1972 or 1974 editions.

Teachers' References

Elliott et al. *Solutions to Vectors and Matrices*.

Davies, Philip J. *The Mathematics of Matrices*. Blaisdell Publishing Company, 1965.

Course Content

- | | |
|---|----------------------------|
| 1. Vectors | (Chapter 1) |
| 2. Algebraic Vectors | (Chapter 2) |
| 3. Length and Inner Product | (Chapter 3) |
| 4. Systems of Linear Equations | (Chapter 6) |
| 5. Matrices and Linear Transformations (optional) | (Chapter 7 of 1967 ed.) |

MATHEMATICS 33

Text

Dean, J. E., C. F. Hutchinson, and G. E. Moore. *Principles of Mathematics*, Book III. Holt, Rinehart and Winston of Canada, Ltd., 1970.

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach
2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts
3. To develop powers of analyzing problems and presenting solutions in a clear manner
4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

A. Algebra

1. Relations and Functions
2. Quadratic Functions
3. Maximum and Minimum values of quadratic functions
4. Variation
5. Exponential and Logarithmic Functions
6. Inverse functions
7. Permutations and Combinations
8. Binomial Theorem

B. Trigonometry

1. Sine Law and Cosine Law
2. Pythagorean relations and trigonometric equations
3. Vectors
4. Using trigonometry to solve vector problems

C. Elementary Descriptive Statistics

1. Frequency distribution tables, frequency histograms, frequency polygons
2. Quartiles and percentiles
3. Measures of variability
4. Standard Measure
5. Binomial Distribution
6. Curve of normal distribution

MUSIC

Objectives of the Secondary School Music Program

To help the student:

1. Increase his awareness of and sensitivity to music of his own and other cultures, past and present.
2. Increase his ability to understand, evaluate and become articulate about music.
3. Understand the ways and means of communicating through music.
4. Increase his ability to communicate through music.
5. Evaluate his own musical abilities.
6. Be a part of and understand the creative experience.
7. Become aware of the basic importance of music in his life and in the lives of men.
8. Increase his self-confidence.
9. Develop a philosophy of life by providing an acquaintance with musical works which convey universal truths.

The Secondary School Music Program

Grade VII, VIII and IX music courses are defined as Group A options in the *Junior-Senior High School Handbook*. The time allotment for these options is a minimum of 75 hours.

The Senior High School music program may be organized under the following headings: Music 10, 20, 30 (choral music); Music 11, 21, 31 (instrumental music); Music 12 (general music).

Where staff, facilities and enrollment permit, the students should be given the opportunity to choose from among Choral Music, General Music, or Instrumental Music as a means of satisfying the music option at each grade level in the Junior High School. Where course offerings must be limited, the interests and strengths of the students and staff should determine which alternatives will be offered. All music courses, therefore, should include the basic core of conceptual learnings in music as part of the course content as indicated below. The teacher should endeavor to help each student progress at least one level of understanding in each musical concept each year.

Guidelines for credit values and sequences of courses at the High School level are found in the *Junior-Senior High School Handbook*.

At the Junior High School level instruction should be individualized so that the students will not be prohibited from taking any of these music courses because they had not elected music the previous year. This could be achieved by having all the first year band or orchestra students in the same class even though some may be in Grade VII and some in Grade VIII, or by giving separate evaluations to the Grade VIII students who had taken music in Grade VII and those students who had not taken music in Grade VII.

Planning a Program

An effective program will take into account the backgrounds, interests, strengths, and limitations of the students in that program. Each instructor must, therefore, determine the present level of achievement of his students; the goal for which the students should strive; the means of accomplishing the objectives and of evaluating the success of the program.

The Scope and Sequence Chart of the Conceptual Learnings included here is not intended to be prescriptive. It is a “bird’s eye view” of the elements included in a secondary music program of studies and suggested sequence presentation. For the most satisfactory progress towards the long range objectives, a balanced program should be planned for each student. The balance that should be the concern of the teacher is the balance of conceptual learnings and not one of activities. For example, a high degree of rhythmic development (see chart) with a complete neglect of harmonic or historical understanding, would signify an unbalanced program. Yet if an understanding of all of the concepts can be developed through choral rehearsals, performance and discussions about choral music, additional activities will not be necessary. It is possible for the same understanding to be achieved in a strictly instrumental program. Usually some variety of activities is necessary to allow for individual differences within any class.

SCOPE AND SEQUENCE CHART

(Summary only — details are included in Curriculum Guide
to Secondary Music)

Elements of Music

| | |
|------------|---|
| Rhythm | — six levels ranging from aural awareness of and response to phrasing, pulse, rhythm and accent to development of understandings of such concepts as syncopation. |
| Melody | — six levels ranging from aural awareness of pitch to an understanding of descants, rounds and canons. |
| Harmony | — six levels ranging from aural awareness of chord changes to an introduction to two- and three-part harmonization. |
| Form | — six levels ranging from aural awareness of phrase length and a feeling for cadence to such forms as sonata, fugue etc. |
| Tempo | — six levels ranging from aural awareness and response to changes in tempo to visual awareness of the relationship of tempo to form. |
| Dynamics | — six levels ranging from aural awareness of loud and soft to ways of achieving and controlling dynamics. |
| Tone Color | — six levels ranging from aural awareness of difference in timbre, to a knowledge of instrumental effects. |

Historical Perspectives

| | |
|-----------------|---|
| Music Yesterday | — six levels ranging from singing as amplified speech in primitive times to ‘avant garde’ music. |
| Music Today | — six levels ranging from music in today’s cultures and sub-cultures to concerns of professional musicians etc. |

Related Areas

| | |
|------------------|---|
| Science of Sound | — six levels ranging from aural awareness of how sounds are produced to consonance and dissonance in acoustics. |
|------------------|---|

| | |
|--------------------------|---|
| Compositional Techniques | — six levels ranging from awareness of relationship of inspiration to technique, to opportunities to write music from a given progression. |
| Musical Score | — six levels ranging from awareness of single line scores to full orchestral and vocal scores. |
| Aesthetic Consideration | — six levels ranging from awareness of three-way relationship among composer-performer and listener to an analysis of the concept of changing music styles. |

In order to place this information on a chart, the statements have been summarized. These statements are explained fully in the Curriculum Guide for Secondary Music.

The Basic Core

To achieve the objectives of the music program three areas must be the concern of the teacher: the cognitive, the psychomotor and the affective. These three areas should not be separated but be considered simultaneously.

In the same way the cognitive, psychomotor and affective remain of equal concern, the various sections of the Scope and Sequence Chart of Conceptual Learnings should be considered and planned-for concurrently. None of the areas should be neglected for any appreciable period of time.

The chart is divided into three sections: Elements of Music (rhythm, melody, harmony, form, tempo, dynamics, tone color); Historical Perspectives; and Related Areas (science of sound, compositional techniques, texture, and aesthetic considerations). For each element or area several levels of development are outlined which range from simple awareness to aural and visual understanding. These levels of development do not necessarily represent grades, but are to be used to develop a balanced spiral program throughout the secondary school. It should be noted again, the chart is not meant to be prescriptive, and above all, it should not be restrictive. Classes or students able to achieve at a higher level should be encouraged to do so, but only if all areas are progressing and expressive skills and positive attitudes developing. Performance groups will probably progress more rapidly in rhythm, melody, dynamics, etc., and General Music students in historical perspectives or compositional considerations.

At all times the teacher must be aware that music is more than the sum of its parts, and that one element can not satisfactorily be separated from the others. In spite of this, the distinctive attributes which make each musical element or area different from the others have been recognized and isolated in the chart.

The Secondary Choral Program

In addition to covering the basic core, the choral program should help the student:

1. Develop tone control and avoid the misuse of his singing voice.
2. Become acquainted with a varied repertoire of choral literature.
3. Improve his breathing, diction and ability to sing parts.
4. Improve his ability to read music.

Grades VII to X — General Music Program

Students choosing general music expect a varied and exciting musical experience that is different from the Choral program, and yet not a repeat of the elementary music program. The emphasis may be on creating music, performing music on instruments, and singing, or any subject or skill area of interest to the students and teacher. This in no way relieves the class of the responsibility of including the basic core of musical understanding.

The Secondary Instrumental Program

In addition to covering the basic core, the instrumental program should help the student:

1. Develop tone control and articulation skills necessary for performing in various styles.
2. Become acquainted with a varied repertoire of instrumental music literature, both solo and ensemble.
3. Develop personal character traits of leadership, poise, and dependability.
4. Improve his ability to read music.

Recommended Textbooks

The following music texts are recommended for use:

Choral Music (Junior High)

Leonhard, Charles, et al. *Discovering Music Together*, Books 7 and 8. Follett, 1967.

Wilson, Harry, et al. *Growing With Music*, Books 7 and 8. Prentice-Hall, 1966.

Cowan, Don. *Search for a New Sound*, Basic Goals in Music, Book 8. McGraw-Hill, 1967.

General Music (Junior High and Music 12)

Landis, Beth, and Lara Hoggard. *Exploring Music*, the Senior Book. Holt, Rinehart and Winston, 1968.

OCCUPATIONS 10

References

Clarke and Woodsworth. *Youth and the Modern World of Work. Job Monographs and Occupational Outlines.*

Objectives

1. To relate satisfactory work habits formed in school to possible success on the job.
2. To focus attention on the importance of desirable attitudes toward the world of work.
3. To encourage an awareness by the student of the changing nature of employment and its possible relationship to him.
4. To encourage each student to select a vocational area related to his abilities and interest.
5. To provide an opportunity for group guidance in the classroom.

Course Content

Unit I. — Adequate Preparation

- A. Educational and vocational planning
 1. Types of planning
 2. Significance of course choice.
- B. The importance of an education
 1. The cost of quitting school
 2. The reasons people drop out of school
 3. The experiences the drop-out encounters
 4. What the high school graduate brings to employment

Unit II. — Occupational Exploration

- A. Occupations ahead
 1. Survey of the occupational field
 2. The Canadian occupational picture
- B. Classifications of occupations
 1. Dominion Bureau of Statistics Classification
 2. Other classifications
 3. Demand occupations
- C. Investigation of a particular occupation
 1. Need for occupational surveys
 2. Basic outline for the study of an occupation
- D. Investigation of an industry
 1. Influence of the industrial picture on career planning
 2. Adaptability essential in industrial change

Unit III. — Opportunities for Training

- A. Kinds of training
 1. University
 2. Institutes of Technology
 3. Vocational Programs
 4. Apprenticeship

5. Agricultural and Vocational Colleges.
 6. Business Colleges
 7. Schools of Nursing
- B. Financial assistance for training
1. Students Assistance Act
 2. Scholarships
 3. Armed Services
 4. Subsidized Apprenticeship
 5. Allowances

Unit IV. — The Individual and the Job

- A. Analysis of interests and abilities
1. Interest and the job
 2. Abilities and the job
- B. Relationship of social and emotional characteristics to the job
1. Social characteristics
 2. Personal characteristics and the job
- C. Safety and the individual
1. The accident problem
 2. The cost of accidents
 3. Accident prevention responsibility
 4. Cause of accidents
 5. The role of training in accident prevention
 6. Preventive program
- D. Alcohol and the job
1. Historical background
 2. Reasons for drinking
 3. Effects in industry and the professions
 4. Effects upon individuals
 5. Rehabilitation

PHYSICAL EDUCATION

Physical education is concerned with development of the whole individual. As well as contributing to the mental, social and emotional well being of youth, a claim all subjects make, physical education has its unique contribution in developing physical fitness and motor skills in recreational activities which can carry over into adult life.

Every physical education program must motivate the student to engage in activities which develop physical fitness as well as those that are recreational in nature. The program must be challenging and also allow for personal achievement at the various levels of participation. Individual differences, needs and desires must be taken into account in order to provide enjoyment and self-satisfaction.

Objectives of Physical Education

1. The development of a strong body and sound functioning of body systems.
2. The development of recreational and utilitarian skills.
3. The development of a wholesome interest in physical activities for wise and constructive use of leisure time.
4. The development of desirable standards of behaviour and the ability to get along well with other people.

PROGRAM ORGANIZATION

There are many activities from which a physical education program may be chosen. In order to insure that a well-balanced program is carried out, these principles have been established.

First, the program from Grade VII through Grade X should be sequential with a continuous progression in skills from basic to complex. The student should also experience a variety of activities. Therefore the program should be carefully planned with this end in view. It is particularly important that the program in Senior High School be planned with a knowledge of what the student's program has been in the Junior High School.

Second, six major kinds of activities are considered to be of importance in the physical education program. These are designated as core activities. Each of the six categories of activity either is in itself a core activity or includes core activities. The core activities are:

1. Outdoor: Flag Football, Ice Hockey, Softball, Soccer, Field Hockey.
2. Indoor: Basketball, Volleyball.
3. Dual and Individual: Badminton, Cross-Country Running, Handball, Skating, Track and Field, Wrestling (boys).
4. Rhythmics and Dance.
5. Tumbling and Gymnastics.
6. Aquatics (where facilities are available).

Applying the principles stated above, therefore, a sound physical education program for any one year should be organized as follows:

1. Two or more outdoor team games, at least one of which is a core activity.
2. Two or more indoor team games at least one of which is a core activity.
3. Two or more individual or dual sports one of which is a core activity.
4. Tumbling and Gymnastics.
5. Rhythmics and Dance.
6. Aquatics (where facilities are available).

PHYSICAL EDUCATION 10

Course Content

NOTE: In teaching the activities listed below the following areas should be covered:

(1) History, (2) Terminology, (3) Rules and Officiating, (4) Selection and Care of Equipment, (5) Skills and Techniques, (6) Team Play or Games strategy (where applicable), (7) Lead Up Games and Games Variations, (8) Conditioning. Some of these areas will be incidentally taught while other will be taught directly.

Activities not included in the list may be taught with the approval of the superintendent of schools.

OUTDOOR TEAM GAMES

A. Flag Football (Core)

1. Skills and Techniques

- (a) Stance of linemen and backfield.
- (b) Pulling of linemen.
- (c) Blocking — shoulder, brush, kick-off protection, pass protection.
- (d) Passing and receiving — throwing, catching, cutting, pass patterns, pass defence.
- (e) Central exchanges — the “T”, single wing, punting, field goals, leading.
- (f) Kicking and receiving — punting, field goals, receiving a punt or a kick-off.

2. Team Play

- (a) Offensive Plays — quick opening, off tackle, end run, reverse and double reverse counter, pass plays.
- (b) Defensive Plays — individual responsibilities, side-line defence, rushing, rotating, stunting, looping, floating.

B. Ice Hockey (Core)

1. Skills and Techniques

- (a) Skating — starts, stops, backwards, forwards, turns, reverses.
- (b) Shooting — forehand, backhand, slap
- (c) Passing
- (d) Checking — poke, shoulder, hip, fore, back, blocking shots
- (e) Goal tending

2. Team Play

Power play, penalty killing, offensive and defensive positional plays, plays initiated inside the blue line.

C. Softball (Core)

1. Skills and Techniques

- (a) Throwing — underhand, overhand, sidearm
- (b) Fielding — ground balls, fly balls
- (c) Batting — stance, saving, punting
- (d) Base running
- (e) Positional Play — catcher, pitcher, basemen, shortstop, outfielders

2. Team Play

- (a) At Bat
- (b) In the Field

D. Soccer (Core)

Skills and Techniques

- (a) Passing, receiving, dribbling, heading
- (b) Trapping — foot, shin, body
- (c) Kicking (stationary and moving) volleying, charging, tackling, throwing, goalkeeping

E. Bordenball

Skills and Techniques — passing, shooting

F. Broomball

Skills and Techniques — basic skating skills, goal tending, use of broom.

G. Curling

Skills and Techniques

Delivery (in-turn, out-turn, weight); sweeping, skipping.

H. English Rugby

Skills and Techniques

- (a) Running — swerve, sidestep, change of pace, hand-off, selling.
- (b) Ball Skills — passing, punting, catching, drop kicking, place kicking, dribbling, falling the ball.
- (c) Fielding and tackling.
- (d) Scrum Play — set scrum, loose scrum, line out, wheeling, positional play.
- (e) Back Play — alignment, scrum half, break through, offensive kicking (short kick, grubber kick, cross kick), reverse play, scissors pass, blind side pass.

I. Field Ball

Passing, Shooting.

J. Field Hockey (Core)

Skills and Techniques

- (a) Passing, receiving, dribbling, fielding, tackling
- (b) Individual defence, bully, corner, roll-in
- (c) Goal tending

K. Speedball

Skills and Techniques

Dribbling, passing, place and drop kicking, punting, pickups

INDOOR TEAM GAMES

A. **Basketball** (Core)

1. **Skills and Techniques**

- (a) Basic Stance — offence and defence.
- (b) Footwork — running forward and backward, pivoting, one-two count.
- (c) Passing, Pass-Receiving — two-hand chest, one-hand push, bounce, overhead, hook, baseball, underhand.
- (d) Shooting — two-hand set, layup, hook, jump, running one hand, foul shooting.
- (e) Dribbling — high, low.

2. **Team Play**

- (a) Man-to-man and zone defences
- (b) Screening, overloading, fast break

B. **Volleyball** (Core)

1. **Skills and Techniques**

- (a) Volleying — position, back court volleying, setting, below the chest.
- (b) Serving — underhand, overhand, assisted, arm and hand action.
- (c) Spiking — approach, placing, back court spiking, arm and hand action.
- (d) Blocking — the jump, recovering the ball off the net.

2. **Team Play**

- (a) Offence — 1, 2, 3 (volley, set, spike), rotation of the setter, the fake spike.
- (b) Defence — double team blocking, team movement for spikes and tips, team movement when there is no spike.

C. **Floor Hockey**

With the exception of skating, same skills as ice hockey.

D. **European Handball**

Skills and Techniques

Dribbling, shooting, passing, defensive fundamentals.

DUAL AND INDIVIDUAL SPORTS

A. **Badminton** (Core)

Skills and Techniques

- (a) Serves
- (b) Forehand and backhand
- (c) Clear, drive, drop, smash, net, round the head
- (d) Doubles systems of play

B. **Cross Country Running** (Core)

Running style, conditioning, pacing, strategy.

C. **Handball** (Core)

Skills and Techniques

Serve, volley, half volley, lob, killshots, back-wall and ceiling shots, doubles systems of play.

D. Skating (Core)

Skills and Techniques

Skating forward, backward; stops turns, starts; figure 3; figure 8, spiral; elementary individual and pair routines.

E. Track and Field (Core)

Skills and Techniques

- (a) Sprints — starts, running stride, the finish.
- (b) Relays — baton exchange, types of relay.
- (c) Middle Distance — running stride, hand, arm, leg and foot action, the finish.
- (d) Broad Jump — approach, take-off, the jump, landing.
- (e) High Jump — approach, take-off, kick (western, eastern, belly roll), landing.
- (f) Hurdles — movement of leading and trailing leg, steps between hurdles, the start, approaching first hurdle, the finish.
- (g) Shot Put — hand-hold, delivery, release, movement across the circle, recovery.
- (h) Discus — hand-hold, initial stance, preliminary swings, delivery, movements across the circle, release, recovery.
- (i) Pole Vault — hand-hold, pole carry, approach, swing up, pull up, body form, landing.
- (j) Hop, Step and Jump — approach, take-off, the hop-step-jump rhythm, landing.

F. Wrestling (Core)

Skills and Techniques

- (a) Stance — on the feet, on the mat, closed stance.
- (b) Breakdowns — near arm and far ankle, head lever and far ankle, far arm and far ankle.
- (c) Riding the opponent.
- (d) Reverses and Escapes — defensive positions on the mat, wing lock or side roll, escape from underneath, hip-lock escape, hip-lock escape with cross face.
- (e) Pinning Holds — near wrist and half-nelson, hammerlock and half-nelson, crotch and half-nelson, outside crotch and near wristlock.

G. Archery

Skills and Techniques

Stringing the bow, basic stance and position, nocking, holding, drawing and aiming, loosing, novelty shots.

H. Bowling

Skills and Techniques

Grip, footwork, release, speed and rhythm, point of aim.

Types of Delivery — straight, hook, back up.

Types of Shots — strikes, spares, splits.

I. Golf

Skills and Techniques

Grips, stance, swing, wood shots, irons, putting, selection of clubs.

J. Hiking and Campcraft

1. Skills and Techniques

(a) Campcraft: — fire building and safety, outdoor cooking, menu planning, cooking kits and food packing.

(b) Knotcraft: — rope whipping, reef knot, bowline, clove hitch, use of knots, use of lashing ropes.

(c) Direction finding: — sun, watch, stars, compass.

2. Campsite and Equipment

(a) Types of camp: — resident family, dual and individual campsites and shelters.

(b) Camp facilities and resources, public lands and parks.

3. Camping Activities

(a) Campfire activities: — stories, skits, songs, games.

(b) Other: — canoeing, swimming, casting, fishing, archery, hiking, ice-fishing.

(c) Nature study: — birds, leaves, rocks, insects, trees, animals, fish.

K. Horseshoes

Skills and Techniques

Grip, turns, stance, step and swing release.

L. Personal Defence

Judo, ju-jitsu, boxing.

NOTE: These sports should be offered only by teachers skilled in the activity and where facilities and equipment ensure the safety of the students participating.

M. Skiing

Skills and Techniques

(a) On the level: — gliding, step, skating, step turn, kick turn.

(b) Climbing: — side step, herring bone, traverse.

(c) Downhill: — straight turn, traverse stopping, side slipping, other turns.

N. Table Tennis

Skills and Techniques

- (a) Basic stance, grip, service, spins.
- (b) Defensive strokes: — the half volley, the chop.
- (c) Offensive strokes: — the drive, the drop shot.
- (d) Doubles systems of play.

O. Tennis

Skills and Techniques

Grip, stance, footwork, forehand and backhand drives, service, lob, volley, half volley, smash, doubles systems of play.

RHYTHMICS AND DANCE (Core)

A. Dance

- 1. **Folk Dance:** — basic steps, fundamental and derived.
- 2. **Square Dance:** — patter and singing calls, single and double visiting couple, accumulative figures.
- 3. **Social and Ballroom Dance:** — basic steps in waltz, foxtrot, tango, rumba, samba, current dance steps, dance patterns.
- 4. **Creative or Modern Dance:**
 - (a) Moving in and through space: — locomotor and axial movement, space design, group design, floor pattern, qualities of movement.
 - (b) Dance techniques: — creative activities, improvisations, abstracts, response to stimuli.
 - (c) Composition principles: — units, variety, repetition, contrast, balance, harmony.
- 5. **Tap Dance:** — basic steps, combinations, routines.
- 6. **Ballet.**

TUMBLING AND GYMNASTICS (Core)

A. Tumbling

Forward roll, backward roll, shoulder roll, dive roll, three-man shuffle, double roll, jump through, nip up, chest roll, fish flop, head spring, neck spring, hand spring (bent and straight arm), round off cartwheel.

Trampoline

- (a) Rebounding form — basic form, tuck, pike, jackknife.
- (b) Drops — check drop, knee, hand and knee, seat, front and back.
- (c) Advanced stunts — somersault, twists, dives and back over.

B. Free Exercise

C. Balances

Squat, hand and head, forearm, snapdown.

D. Double Balances

Foot to hand, thigh stand, knee stand, walk-up shoulder mount, low arm to arm, assisted somersault.

E. Pyramid Building

F. Horizontal Bar (Boys)

Clins, skin-the-cat, monkey hangs, belly grind, front hip circle, short underswing and dismount, low underswing with half turns at end, single knee dismount, single knee mount from swing, single knee circle backward, double knee circle forward, single knee circle forward.

G. Vaulting Box

1. Sideways: — squat vault mount, jump off forward (with pike), straddle vault, squat vault, side or flank vault, front vault, stoop vault, dive over box with forward roll, neckspring, headspring, handspring.
2. Lengthways (boys) — squat vault mount, kneeling vault, straddle vault mount, side vault, scissors vault with half turn, forward roll, neckspring headspring, handspring.

H. Parallel Bars (Boys)

1. Mounts: — single leg cut on, double leg cut on, lazy man kip, inverted hang to straddle.
2. Dismounts: — single leg cut off, double leg cut off, front dismount to side, rear dismount to side.
3. Stunts: — jump to cross rest position, jump to cross upper hang, swing from shoulders, stationary and swinging dips, hand walk forward, crab walk on bars, straddle progression, swing through and sit, forward roll to straddle, forward roll, shoulder balance, roll forward from shoulder, roll backward from straddle, kick up-start, front uprise, back uprise, upper arm kip, handstand.

I. Uneven Parallels (Girls)

1. Mount: — front support mount, backpull over, hang to straddle, pike or swing legs over, knee circle mount.
2. Dismount: — handstand $\frac{1}{4}$ turn, underswing high bar, straddle sole-circle.
3. Movements on the bars:—
 - (a) Hanging and swinging — underswing high bar $\frac{1}{4}$ turn, skin-the-cat cartwheel, cast off high bar.
 - (b) Circling the bar — knee circle, hip circle, seat circle.
 - (c) From bar to bar — stem rise, single leg kick-over, eagle regrasp.

J. Rings (Boys)

Chins or bent-arm hang, inverted hand, swing, basket, single leg cut, inlocate, dislocate.

K. Balance Beam (Girls)

1. Mounts: — straddle over to sit, squat mount, fence vault.
2. Dismounts: — pike jump, English hand balance, cartwheel.
3. Locomotor movements: — runs, hops, jumps.

4. Balances: — front scale, knee scale, lunge.
5. Tumbling stunts: — front roll, back roll.

AQUATICS (Core)

A. Swimming

1. Adjustment to the water, drownproof techniques.
2. Strokes — front crawl, back crawl, elementary back stroke, side stroke, breast stroke, hybrid strokes.
3. Floating, treading water and sculling.
4. Diving.
5. Life saving (for advanced swimmers).
6. Water games.

B. Synchronized Swimming

1. Sculling — flat scull, head first, feet first, circle propeller.
2. Back entries -- back tuck somersault, back dolphin, kip, flying back dolphin.
3. Forward entries — front tuck somersault, front pike, somersault, bent knee front, tuck somersault, porpoise.
4. Ballet leg figures.
5. Strokes.
6. Floating — back layout, tub, log roll, marlin, waterwheel, shark.
7. Individual and group routines and patterns to music.

C. Water Safety

PHYSICAL EDUCATION 20

The general objectives of physical education will remain the same for Physical Education 20 as for all other physical education programs: that is the program should provide for the attainment of physical, social, emotional, and intellectual objectives. Opportunity should be provided for the development of strength, agility, speed, vitality, and general physical fitness, as well as participation in, and the enjoyment of, a variety of physical activities. In addition, through certain activities it is possible to create an atmosphere of cooperation and fair play and to develop self-expression, poise, and creativity.

It is desirable for all students to take Physical Education 20 and it should be available to all students, regardless of program.

Specific objectives for any particular Physical Education 20 program should reflect the specific interests, needs, and abilities for the student group., Any given program might emphasize one or more of the following plans:

- (1) Continue a basic sequential program initiated at the Grade Seven level.

As more students are encouraged to take Physical Education 20, the greater is the need for a coordinated program through Physical Education 10 and 20. Physical Education 20 should not be merely a duplication of Physical Education 10.

- (2) Stress individual and dual sports. When adjusting the program to meet the needs of a student group approaching graduation, an increased stress on leisure-time activities with definite carry-over value should be made. With the ever increas-

ing need for instruction in the wise use of leisure time such a program is vital, including such activities as tennis, badminton, swimming, camping, boating, and curling, as well as the promotion of co-educational activities.

(3) Develop student leadership techniques. Physical Education 20 students should provide leadership in the intramural and class programs within the school, and ideally, be prepared to serve the community.

A combination of these various approaches will in all probability best serve the needs and interests of most physical education classes and in so doing present a challenging, enjoyable, and balanced program.

PHYSICAL EDUCATION 30

The program for Physical Education 30 should be designed with emphasis upon individual and dual sports. It should concentrate on those activities that can be enjoyed throughout life stressing purposeful use of one's leisure time.

The activities which are taught will depend upon the facilities and equipment available, however utilization of facilities outside the school will provide for curriculum enrichment.

Core: Outdoor Education Fitness, First Aid.

Electives. A minimum of four should be chosen from the following list. Archery, aquatics, badminton, bowling, curling, dance, fencing, golf, gymnastics, handball, judo, orienteering, (figure) skating, skiing, tennis, track and field, other individual or dual sports and leadership and organization experiences.

PRODUCTION SCIENCE 30

Introduction

Production Science 30 is a new five credit course which can be taught at the grade eleven or twelve level. Some background on the part of students in the production or service areas around which the course is built would be desirable.

Production Science is a course that has been developed from activities carried on in the Industrial Education program. This course, however is not dependent on the facilities usually found in Industrial Education — rather it is a method of teaching that can be utilized in other areas as well, such as Business Education and Home Economics.

It is suggested that the Production Science course simulate a typical mass production business or industrial activity which incorporates the basic social and human principles of an industrial organization in a laboratory environment.

The attempt to identify the basic structure of industrial sociology must not be considered as final but rather as initial and exploratory, to be modified and revised through research and experimental practice.

One approach is to design a product that will include as many technological areas as possible. The laboratory may be organized to simulate an assembly line format. The students are to play roles with the opportunity to change them when necessary.

Another approach is to design a product that will include as many technological areas as possible. The laboratory may be organized to simulate an assembly line format. The students are to play roles with the opportunity to change them when necessary.

Another approach is to develop an organization to provide a service.

Monies collected from the sale of a product may cover the cost of materials and offer a small percentage return in dividends to the share holder.

Emphasis should be placed on safety.

Objectives

The main objective in Production Science is that the student understands the role that man plays in the organizational structure of business and industry, his influence upon production, and the various problems encountered in producing a salable product or service within a community.

It is hoped that through a Production Science approach the student will begin to understand:

- (1) the various demands and pressures of Man on Technology and Technology on Man in order to produce a product or service;
- (2) the human factors as they affect the success or failure of an organization;
- (3) the interrelationship of technologies; and
- (4) the mechanics of an organization.

Content

1. An introduction to industry through production technology
— modern civilization and industrial dependence
— facets of industry; men, machines, materials

2. Industry and division of labour
 - job and operation breakdowns
 - flow charts
 - labour allocations
3. Personnel organization
 - industrial organization
 - formal organization
 - informal organization
4. Research and development
 - elements of a salable product
 - industrial research
 - prototype development
5. Simulated industrial production
 - industrial production
 - physical problems
 - sociological problems
6. Technological changes
 - growth of knowledge
 - technological changes and man
7. Career opportunities

References

Junior Achievement Course Materials

- Haws, Robert W. and Carl J. Schaffer. *Manufacturing in the School Shop*. American Technical Society, 1966. (Available from General Publishing Co. Ltd., Don Mills, Ontario.)

SCIENCE

Objectives of Secondary School Science

The learning of science, as an area of human endeavor, should provide the student with a scientific literacy which enables him to assume an active and useful role as a citizen in a democratic society. It may be assumed that this literacy is best achieved by considering the individual needs of students and through independent study and learning.

Specifically, the following objectives must be achieved in the Secondary School Science:

1. To promote an understanding of the role that science has had in the development of societies:
 - a) history and philosophy of science as part of human history and philosophy
 - b) interaction of science and technology
 - c) effect of science on health, population growth and distribution, development of resources, communication and transportation, etc.
2. To promote an awareness of the humanistic implications of science:
 - a) moral and ethical problems in the use and misuse of science
 - b) science for leisure-time activities
3. To develop a critical understanding of those current social problems which have a significant scientific component in terms of their cause and/or their solution:
 - a) depletion of natural resources
 - b) pollution of water and air
 - c) over-population
 - d) improper use of chemicals
 - e) science for the consumer.
4. To promote understanding of and development of skill in the methods used by scientists:
 - a) processes in scientific inquiry such as observing, hypothesizing, classifying, experimenting and interpreting data
 - b) intellectual abilities such as intuition, rational thinking, creativity, and critical thinking
 - c) skills such as manipulation of materials, communication, solving problems in groups, and leadership.
5. To promote assimilation of scientific knowledge:
 - a) emphasis on fundamental ideas.
 - b) relevance of scientific knowledge through inclusion of practical applications
 - c) application of mathematics in science
 - d) interrelationships between the sciences
 - e) open-endedness of science and the tentativeness of scientific knowledge.
6. To develop attitudes, interests, values, appreciations, and adjustments similar to those exhibited by scientists at work.
7. To contribute to the development of vocational knowledge and skill:
 - a) science as a vocation
 - b) science as background to technical, professional and other vocations.

BIOLOGY 10

Recommended Texts (in order of preference)

High School Biology. 1968 edition. BSCS, Green Version. Gage.

*Otto and Towle. *Modern Biology*. 1965 edition. Holt, Rinehart and Winston.

Biological Science, An Inquiry Into Life. 1968 edition. BSCS, Yellow Version, Harcourt, Brace Jovanovich.

Student Laboratory Guide to *Biological Science, An Inquiry Into Life*.

*It is recommended that those who choose Otto and Towle as the basic text use the BSCS Yellow Version laboratory guide.

Objectives

1. To explore the current critical environmental problems of human over-population, and resource management.
2. To learn the basic principles of the classification of organisms and the application of these principles in the construction of keys.
3. To learn the reasons for, and the techniques of, collecting and maintaining appropriate biological specimens and to develop an appreciation of the importance of these activities.
4. To develop an understanding of the principles of ecology.
5. To study the principles of cytology and heredity.

Course Outline

Unit I. — Student Biology Project

This project will be guided by the teacher but will be selected and carried out by the student (or group of students). The project can be in any area of biology but should involve laboratory and/or field research and the writing of a report. It will be started early, will run concurrently with other units, and may continue until the end of the course.

Unit II. — Classification

1. Basis of classification
2. Collecting
3. Preserving specimens
4. How to make a key and use of a key.

Unit III. — Ecology

1. Ecosystems and communities
2. Environmental factors
3. Interaction
4. Resource management with emphasis on pollution and conservation.

Unit IV. — Cell Theory and Genetics

1. Cell theory
2. Mitosis and meiosis (chemistry not included)
3. Mutation and selection (adaptation)
4. Selective breeding (plant and animal)
5. Human overpopulation.

BIOLOGY 20

Recommended Texts (in order of preference)

Biological Science, An Inquiry Into Life. 1968 edition. BSCS, Yellow Version. Harcourt, Brace Jovanovich.

Student Laboratory Guide to *Biological Science, An Inquiry Into Life*.

*Otto and Towle. *Modern Biology*. 1965 edition. Holt, Rinehart and Winston.

High School Biology. 1968 edition. BSCS, Green Version. Gage.

*It is recommended that those who choose Otto and Towle as the basic text use the BSCS Yellow Version laboratory guide.

Objectives

1. To further investigate the principles of ecology by carrying out a field or laboratory project.
2. To study the theories of biological evolution.
3. To show the development and relationship of form and function by comparative study of representatives of the biological kingdoms. The study of man is to be included.

Course Outline

Unit I. — Student Ecology Project

This project will be guided by the teacher but will be selected and carried out by the student (or group of students). The project can be in any area of ecology and should involve laboratory and/or field research and the writing of a report. It will be started early, will run concurrently with other units, and may continue until the end of the course.

Unit II. — Evolutionary Development

1. Review Unit IV, Part 3, of Biology 10
2. The theories of evolution.

Unit III. — Biological Kingdoms

1. The two-, three-, and four-kingdom systems
2. The relationship of form and function in the study of comparative anatomy, morphology and life cycles of selected representatives of the kingdoms.

BIOLOGY 30

Recommended Texts

McElroy, W., et al. *Foundations of Biology*. Scarborough: Prentice-Hall of Canada Ltd., 1968.

Ehrenfeld, D. *Biological Conservation*. Toronto: Holt, Rinehart and Winston, Inc., 1970.

Laboratory Manual

Abramoff, P., and R. G. Thomson. *Investigations of Cells and Organisms*. Scarborough: Prentice-Hall of Canada Ltd., 1969.

Secondary Reference

Weisz, P. *Elements of Biology*. Third edition. Toronto: McGraw Hill Company of Canada Ltd., 1969.

Objectives

1. To study with examples from different biological kingdoms the following processes:
 - a) ingestion and absorption of raw materials, food and gases
 - b) movement of materials
 - c) elimination and excretion
 - d) photosynthesis and other syntheses
 - e) digestion
 - f) energy relationships, including respiration
 - g) sensitivity and movement; nervous and hormonal control
2. To provide an opportunity for the study and discussion in greater depth than Biology 10 of current biological problems.
3. To further develop investigative skills and understanding by carrying out a biology project, preferably in the field or laboratory.

Course Outline

Unit I. — Biological Processes

1. Ingestion and absorption of raw materials, food and gases
2. Movement of materials
3. Elimination and excretion
4. Photosynthesis and other syntheses
5. Digestion
6. Energy relationships, including respiration
7. Sensitivity and movement; nervous and hormonal control

Unit II. — Current Biological Problems

Unit III. — Student Project

For a detailed discussion of the above units, teachers are advised to refer to the revised 1971 High School Biology Curriculum Guide.

CHEMISTRY 10

(There is no alternate program for this course.)

Texts

Chemistry, An Experimental Science. (Chem. Study).

Laboratory Manual to Accompany Chemistry, An Experimental Science.

Course Outline

| Chapter Number | Chapter Title | Experiment Number (s) |
|----------------|--|-----------------------|
| 1 | Chemistry: An Experimental Science | 1, 2, 3 4 and 5 |
| 2 | A Scientific Model; The Atomic Theory | 6, 7 |
| 3 | Chemical Reactions | 8 |
| 4 | The Gas Phase: Kinetic Theory | 9 |
| 5 | Liquids and Solids: Condensed Phases of Matter | 10, 11 |
| 6 | Structure of the Atom and the Periodic Table | |

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

PHYSICS 10

(Alternative programs are available.)

Alternative I Program

Text

Stollberg, Hill and Nygaard. *Fundamentals of Physics.*

Course Outline

| Chapter Number | Chapter Title | Investigation Number (s) |
|----------------|-----------------------------------|--------------------------|
| 1 | The Science of Physics | 1 |
| | Some Mathematics Basic to Physics | |
| | Scientific Notation | |
| | Significant Digits | 2A |
| | Graphing Exp. Data | |
| | Percent Error | |
| | The Slide Rule | 3 |
| 2 | Motion and Measurement | 2B, 5 |
| 3 | Force and Motion | 6 |
| 4 | Work and Energy | 4 |

| Chapter Number | Chapter Title | Investigation Number (s) |
|----------------|-----------------------------------|--------------------------|
| 5 | Force in Fluids | 7 |
| 6 | Molecules and Atoms in Motion | 9, 10 |
| 7 | Measurement of Temp. and Heat | 12 |
| 8 | Heat and Change of Physical State | 13, 14 |

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

PHYSICS 10

Alternative II: Physics (PSSC) 1st or 2nd Edition

Laboratory Guide for Physics

Course Outline

| 1st Edition of textbook <i>Physics</i> | 2nd Edition of textbook <i>Physics</i> |
|--|--|
| Part I — The Universe Chapter 1 — What is Physics Chapter 2 — Time and Measurement Chapter 3 — Space and Its Measures Chapter 4 — *Functions and Scaling Chapter 5 — Motion Along a Path Chapter 7 — Mass Elements and Atoms (Sec. "A" only) Chapter 9 — The Nature of a Gas | Part I — The Universe Chapter 1 — An Introduction to Physics Chapter 2 — Time and Measurement Chapter 3 — Space and Its Measures Chapter 4 — *Functions and Scaling Chapter 5 — Motions Along a Straight Line Path Chapter 7 — Mass and the Elements (Omit secs. 7.6-7.8) Chapter 9 — The Nature of a Gas. |

It is suggested that the additional topics which readily lend themselves to experimental approach be added — e.g., Pressure in Liquids; Archimedes' Principle, Heat and Change of State Expansion (Linear only).

Experiments:

Part I — 1, 2, 3, 5, 12, 13, 14, 17.

*The main purpose of Chapter 4 is to interpret experimental data. Pupils should acquire skill in:

- (i) Reading and Interpreting Graphs
- (ii) Constructing Graphs from Given Data
- (iii) Deriving Empirical Formulas from Graphs Based on Experimental Data.

In connection with Chapter 4, teachers are encouraged to perform other experiments which would provide essential data for graphic and algebraic interpretation.

Students should be taught how to use a slide rule early in this course.

It is suggested that the additional topics which readily lend themselves to experimental approach be added — e.g., Pressure in Liquids; Archimedes' Principle, Heat and Change of State Expansion (Linear only).

Experiments:

Part I — 1, 2, 3, 5, 11, 12, 13, 16.

*The main purpose of Chapter 4 is to interpret experimental data. Pupils should acquire skills in:

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- (ii) Constructing Graphs from Given Data
- (iii) Deriving Empirical Formulas from Graphs Based on Experimental Data

In connection with Chapter 4, teachers are encouraged to perform other experiments which would provide essential data for graphical and algebraic interpretation.

Students should be taught how to use a slide rule early in this course.

CHEMISTRY 20
(Alternative programs available)
Alternative I Program

Text

Chemistry, An Experimental Science. (CHEM Study).
Laboratory Manual to Accompany Chemistry, An Experimental Science.

Course Outline — Alternative I

| Chapter Number | Chapter Title | Experiment Number (s) |
|----------------|------------------------------------|-----------------------|
| | Review of Science 10 (CHEM, Study) | |
| 13 | Chemical Calculations | 23 |
| 14 | Why We Believe in Atoms | 24, 25, 8* |
| 15 | Electrons and the Periodic Table | 10* or 1** |
| 16 | Molecules in the Gas Phase | 11* or 2** |
| 17 | The Bonding in Solids and Liquids | 27 |

* Optional experiments from *Laboratory Investigations in Chemistry* — Davis and Allen (see Chemistry 30 Alternative I Outline).

** Optional experiments from Chapter 7, *Elements of Chemistry* — Radomsky, Kass, and Pickard (see Chemistry 20, Alternative II Outline).

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions, etc.

CHEMISTRY 20
Alternative II Program

Text

Radomsky, Kass and Pickard. *Elements of Chemistry*.

Course Outline — Alternative II

| Chapter Number | Chapter Title | Experiment Number (s) |
|----------------|---|-----------------------|
| 1 | The Fundamental Particles | |
| 2 | The Structure of the Atom | 1 |
| 3 | The Periodic Classification of Elements | |
| 4 | Chemical Bonds (omit sec. c (ii) and (iii) under molecular shape) | 2, 4 |
| 5 | Naming of Compounds | |
| 6 | Formula Weights and Volumes | 5, 6, 9 and 10 |
| 7 | Experiments on Unit I and Unit II | |
| 8 | The Chemical Equation | 1 |
| 9 | Solutions | 3, 5, 6 and 7 |
| *10 | The Alkali Metals | 8 |
| *11 | The Halogens | 9, 10 and 12 |
| 12 | Experiments on Unit III | |

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

* These Chapters should be discussed along with Chapters 1, 2 and 3.

PHYSICS 20

(Alternative programs are available.)

Alternative I Program

Text

Stolberg, Hill, Nygaard. *Fundamentals of Physics*.

Course Outline — Alternative I

| Chapter Number | Chapter Title | Investigation Number (s) |
|----------------|---|--------------------------|
| | Some Mathematics Basic to Physics (see Phys. 10) | Steps 1-8 Inv. 3 |
| 9 | Nature of Waves | *15, *16 |
| 10 | Sound | 17, 18 |
| 11 | The Wave Nature of Light | *19, 20, 25 |
| 12 | Reflection of Light | *21 |
| 13 | Refraction of Light | *22, *23 |
| 14 | Color | *24 |
| 5 | Forces in Fluids | 8 |
| 15 | Frontiers of Physics | |

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

PHYSICS 20

Alternative II: Physics (PSSC) 1st or 2nd Edition

Laboratory Guide for Physics

Course Outline

| 1st Edition of textbook <i>Physics</i> | 2nd Edition of textbook <i>Physics</i> |
|--|--|
|--|--|

Part II — Optics and Waves

Chapter 11 — How Light Behaves
 Chapter 12 — Reflection and Images
 Chapter 13 — Refraction
 Chapter 14 — Lenses
 Chapter 15 — The Particle Model of Light
 Chapter 16 — Introduction to Waves
 Chapter 17 — Waves and Light
 Chapter 18 — Interference (Omit Section 18.5)
 Chapter 19 — Light Waves (Omit Sections 19.5 to 19.8)

Part II — Optics and Waves

Chapter 11 — How Light Behaves
 Chapter 12 — Reflection and Images
 Chapter 13 — *Refraction
 Chapter 14 — The Particle Model of Light
 Chapter 15 — Introduction to Waves
 Chapter 16 — Waves and Light
 Chapter 17 — Interference
 (Omit Section 17 - 5)
 Chapter 18 — Light Waves (Omit Sections 18.5 - 18.8)

Experiments:

Part II — 1, 2, 3, 4, 5, 7, 8, 9, 10, 11
(Omit Experiment 11 - 6)

Teachers should consider the teaching of Sound as a natural extension of the study of waves. It is recommended that **Chapter 10** and **Investigation 18** in **Fundamentals of Physics**, Stollberg-Hill-Nygaard be studied in this course.

Experiments:

Part II — 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
11, 12, 13, 16
(Omit Experiment 11 - 6)

Teachers should consider the teaching of Sound as a natural extension of the study of waves. It is recommended that **Chapter 10** and **Investigation 18** in **Fundamentals of Physics**, Stollberg-Hill-Nygaard be studied in this course.

* It is suggested that application of lenses in cameras, projectors, the eye, and simple magnifier, the compound microscope and the telescope, be studied. Good sources of information of application of lenses will be found in **Chapter 14** (Sections 14.4-14.7) of 1st Edition of PSSC text, and Chapter 13 of **Fundamentals of Physics**, Stollberg-Hill-Nygaard.

CHEMISTRY 30

(Alternative programs are available)

Alternative I Program

Texts

Sienko and Plane. *Chemistry*. Canadian edition.

Davis and Allen. *Laboratory Investigations in Chemistry*.

Course Outline — Alternative I

| Chapter Number | Chapter Title | Experiment Number(s) |
|----------------|------------------|----------------------|
| Part I | | |
| 2 | Nature of Matter | |
| 3 | Atoms | |
| 4 | Chemical Bond | |
| 5-5.7 | Stoichiometry | |
| Part II | | |
| 5.9 | Stoichiometry | 1 and 12 |
| 6 | Gases | 13 |
| 7 | Liquids | |
| 8 | Solids | 15 |
| 10 | Solutions | 2, 3 and 17 |

| Chapter Number | Chapter Title | Experiment Number (s) |
|----------------|---|-----------------------|
| 12 | Chemical Kinetics | |
| 14 | Electro Chemistry | 19, 20 |
| 24 | Group IV Elements (Omit Secs. 3, 5, 6, 7, 8 and 9) | |
| 28 | Organic Chemistry (Omit Secs. 3, 4 and 5) | 25 |
| | Quantitative Analysis | 26, 27, 28 |

NOTE: 1. The main emphasis in this program should be on Part II as outlined above.

2. Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

CHEMISTRY 30X

Alternative II Program

Texts

Chemistry, An Experimental Science. (Chem. Study).

Laboratory Manual to Accompany Chemistry, an Experimental Science.

Course Outline — Alternative II

| | | |
|----|--------------------------------------|------------|
| 7 | Energy Effects in Chemical Reactions | 12, 13 |
| 8 | The Rates of Chemical Reactions | 14 |
| 9 | Equilibrium in Chemical Reactions | 15 |
| 10 | Solubility Equilibria | 16 |
| 11 | Aqueous Acids and Bases | 17, 18, 19 |
| 12 | Oxidation — Reduction Reactions | 20, 21 |
| 18 | The Chemistry of Carbon Compounds | 28, 29 |
| 19 | The Halogens | 30, 31 |

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

PHYSICS 30

(Alternative programs are available.)

Alternative I Program

Text

Stollberg, Hill. *Frontiers of Physics*.

Course Outline — Alternative I

| Chapter Number | Chapter Title | Investigation Number (s) |
|----------------|---|--------------------------|
| | Some Basic Physics (see Physics 10 outline). | |
| 1 | Motion and Measurement | 4 * |
| 2 | Force and Motion | 7, 8 |
| 3 | Work and Energy | 10 |
| 4 | Matter and Energy | 11, 12 |
| 6 | Forces in Equilibrium | 15, 16, 17 |
| 7 | Forces and Simple Machines | 18 |
| 9 | Magnetism and Electromagnetism | 22, 23 |
| 10 | Electric Energy and Electric Circuits | |
| 11 | Direct Current | 24, 25, 26 |
| 12 | Moving Charges in Magnetic Fields | 27, 28 |
| 13 | Alternating Current | |
| 16 | Particles, Accelerators and Holes | |

* P.S.S.C. equipment may be substituted if available.

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

PHYSICS 30X

Alternative II Program

Text

Physics (P.S.S.C.)

Course Outline — Alternative II

| Physics 30X — Using 1st Edition of Textbook, <i>Physics</i> | Physics 30X — Using 2nd Edition of Textbook, <i>Physics</i> |
|---|--|
| Part I — The Universe | Part I — The Universe |
| Review | Review |
| Chapter 2 — Time and Measurement (Sec. 4 and 7) | Chapter 2 — Time and Measurement (Sec. 4 and 7) |
| Chapter 3 — Space and Its Measurement (Sec. 5 to 7 incl.) | Chapter 3 — Space and Its Measures (Sec. 5 to 7 incl.) |

| Physics 30X — Using 1st Edition of Textbook, <i>Physics</i> | Physics 30X — Using 2nd Edition of Textbook, <i>Physics</i> |
|--|--|
| Chapter 4 — Functions and Scaling New Work (Sec. 3 and 4) | Chapter 4 — Functions and Scaling New Work (Sec. 3 and 4) |
| Chapter 5 — Motion Along a Path (1-7 omitting 8) | Chapter 5 — Motion Along a Straight-Line Path (Sec. 1-8 incl.) |
| Chapter 6 — Vectors (Sec. 1-6 incl.) | Chapter 6 — Motion in Space (Sec. 1-7 incl.) |
| Part III — Mechanics | Part III — Mechanics |
| Chapter 20 — Newton's Law of Motion | Chapter 19 — Newton's Law of Motion |
| Chapter 21 — Motion at the Earth's Surface (Sec. 1-8 incl.) | Chapter 20 — Motion at the Earth's Surface (Sec. 1-8 incl.) |
| Chapter 22 — Universal Gravitation and the Solar System (Sec. 6-11; Read 1-5) | Chapter 21 — Universal Gravitation and the Solar System (Sec. 6-11; Read 1 to 5) |
| Chapter 23 — Momentum and Conservation of Momentum (Sec. 1-4; Read 5-8) | Chapter 22 — Momentum and the Conservation of Momentum (Sec. 1-4; Read 5 to 7 and rockets) |
| Chapter 24 — Work and Kinetic Energy (Sec. 1-8, 10, 11) | Chapter 23 — Work and Kinetic Energy (Sec. 1-8, 10, 11) |
| Chapter 25 — Potential Energy | Chapter 24 — Potential Energy |
| Chapter 26 — Heat, Molecular Motion Conservation of Energy | Chapter 25 — Heat, Molecular Motion, Conservation of Energy |
| Experiments: | Experiments: |
| III — 2, 3, 4, 5, 6, (8), 9, 10, 11, 12, 13, 14 | III — 1, 2, 3, 4, 5, (7), 9, 10*, 11, 12, 13. |
| Part IV — Electricity and Atomic Structure | Part IV — Electricity and Atomic Structure |
| Chapter 27 — Some Qualitative Facts About Electricity | Chapter 26 — Some Qualitative Facts About Electricity |
| Chapter 28 — Coulomb's Law and the Elementary Electric Charge (Sec. 1-7 incl.) | Chapter 27 — Coulomb's Law and the Elementary Electric Charge (Sec. 1-7 incl.) |
| Chapter 29 — Energy and Motion of Charges in Electric Fields (Sec. 1-8, 13, 14) | Chapter 28 — Energy and Motion of Charges in Electric Fields (Sec. 1-7 incl.) |

Chapter 30 —The Magnetic Field

Chapter 31 - Electro-magnetic
Induction and Electro-
Magnetic Waves

Experiments:

IV — 1 to 10

Chapter 29 —Electric Circuits
(Sec. 4 and 5)

Chapter 30 —The Magnetic Field

Chapter 31 — Electro-magnetic
Induction and Electro-
magnetic Waves

Experiments:

IV — 1, 2, 3, 4, (5)*, (6)*, 7, (8)*,
(9)*, 10, 11, 12, 13

NOTE: Consult the Curriculum Guide for details concerning suggested time, omissions and optional material, etc.

* Do not appear in 1st edition.

SCIENCE 11

Introductory Statement

Science 11, as a program, should continue to emphasize skills, concepts, attitudes, humanistic and social implications of science which have been developed for the elementary and junior high school grades.

In this course, content is significant only to the degree that it provides for the realization of other objectives of the course. Student interest should be a significant criterion in the selection of learning experiences.

Major Objectives of Science 11

1. To enhance the student's self-image and develop a positive attitude toward science. The student should:
 - a) pursue areas of personal interest
 - b) participate in activities in which he/she can experience success.
2. To develop a critical understanding of some current social problems which have a significant scientific component in terms of their cause and/or their solution. The students might study problems such as:
 - a) depletion of natural resources
 - b) pollution of water and air
 - c) over population
 - d) improper use of chemicals
 - e) science for the consumer.
3. To help students appreciate the scope of science. That is, the student should:
 - a) recognize that science is a basic part of modern living
 - b) recognize that science involves both inquiry processes and conceptual patterns
 - c) recognize the interaction of science, the arts and the humanities
 - d) recognize that the achievements of science and technology, properly used, are basic to the advancement of human welfare.

Rationale for the Science 11 Program

Student involvement in Science II should lead to successful experiences in learning and studying in various fields of science. During this course, it is hoped that students, as a result of their successful experiences, will develop an attitude which allows them to realize the changes on their lives which science brings about.

It is understood that the students taking Science 11 will have, in relation to science, a wide range of attitudes, interest, abilities, backgrounds, experiences, and knowledge. In order to assist teachers of these students in selecting relevant materials for their students, a wide range of resources for classroom use has been identified. These resources, however, are not meant to be restrictive and teachers should feel free to supplement them.

Recommended Resource Materials

1. Class activity units *
2. Student projects *
3. a) *Ideas and Investigations in Science-Biology*, by Wong and Dolmatz (Prentice-Hall)
This text contains five Biology Ideas
Idea 1: Inquiry
Idea 2: Evolution
Idea 3: Genetics
Idea 4: Homeostasis
Idea 5: Ecology
- b) *Ideas and Investigations in Science-Physical Science*, by Dolmatz and Wong (Prentice-Hall)
This text contains five Physical Science Ideas
Ideas 1: Predicting
Ideas 2: Matter
Idea 3: Energy
Idea 4: Interaction
Idea 5: Technology

NOTE: Individual Ideas in both Biology and Physical Science are available from the School Book Branch in soft cover format.

* For a sample activity unit and student projects refer to the Science 11 Curriculum Guide, 1971. For a more extensive listing of activity units and student projects (with references) refer to the special School Book Branch publication entitled *Science Activity Units and Projects* (Teacher reference only).

PHYSICS 22

Physics 22 is designed for students in Vocational High schools who are taking programs which articulate with the Institutes of Technology, e.g., Drafting, Electronics, Machine Shop. It is expected that students in other programs may elect this course. Teachers should feel free to adjust the content and method of presentation to the capabilities of their classes; however, it is felt that students in the articulated programs should substantially cover the program as outlined:

Texts

White. *Physics, An Exact Science.*

White. *Laboratory Exercises to Accompany Physics, An Exact Science.*

or

White. *Physics, An Experimental Science.*

White. *Laboratory Exercises to Accompany Physics, An Experimental Science.*

Course Outline

1. Introduction — Lessons 3, 4*.
2. Properties of Matter — Lessons 4, 5*, 6, 7*.
3. Light — Lessons 1, 2, 3*, 4, 5*, 6, 7, 8*, 9, 10*, 11, 12, 13*, 14, 15*.

* The lessons which are marked with an asterisk are laboratory exercises.

** Please note that the course has **not** been revised and teachers using *Physics, An Experimental Science* should choose the equivalent lessons to those found in *Physics, An Exact Science*.

PHYSICS 32

As for Physics 22, Physics 32 is designed for students in Vocational High schools who are taking programs which articulate with the Institutes of Technology and is expected to be equivalent to the Year “A” Physics program in the technical institutes. Information on course content and laboratory exercises follows:

Texts

White. *Physics, An Exact Science*.

White. *Laboratory Exercises to Accompany Physics, An Exact Science*.

or

White. *Physics, An Experimental Science*.

White. *Laboratory Exercises to Accompany Physics, An Experimental Science*.

Course Outline

1. Mechanics
Lessons 1, 2*, 3, 4*, 5, 6, 7, 8*, 9, 10, 11*, 12, 13*, 14, 15, 16*, 17, 18*, 19, 21, 23, 24, 27, 29, 30*, 31, 32, 33*.
2. Electricity
Lessons 1, 2, 3, 4*, 5, 6*, 7, 9.
3. Heat
Lessons 1, 3, 7*, 8, 9, 11, 12*.

* The lessons which are marked with an asterisk are laboratory experiments.

** Please note that the course has **not** been revised and teachers using *Physics, An Experimental Science* should choose the equivalent lessons to those found in *Physics, An Exact Science*.

SOCIAL SCIENCES 10, 20, 30

Rationale

The Social Sciences 10(a), (b) - 20(a),(b) - 30(a),(b) program is intended to complement the Alberta Social Studies by encouraging increased understanding of “man and his world”. Courses in this program are distinct from the Social Studies curriculum, in that they focus on the structure, concepts, and methodologies of specific social science disciplines rather than social issues within a values-oriented interdisciplinary context.

It is intended that the wide variety of modular units should increase the program flexibility available to high schools and the students enrolled in them. The electives are **not** intended to provide an alternative to the existing Social Studies curriculum. Rather, they have been developed to meet diversified student interests and to add enrichment and in-depth understanding to the scope of the total curriculum.

Structure

The Social Sciences 10(a),(b) - 20(a),(b) - 30(a),(b) program is comprised of a series of modular units. Each modular unit develops several themes appropriate to one of the following disciplines — Anthropology, Comparative World Religions, Economics, Geography, History, Philosophy, Political Science, Psychology and Sociology. The sequence in which the modular units of any particular discipline may be studied is optional.

Each modular unit has a credit value of three. In structuring the social sciences program a school is free to select those units that best complement teacher and student interests. Students will receive credit for completed modular units in accordance with the grade level in which they are registered, to a maximum of two modular units (six credits) per grade level:

| | |
|----------|---------------------------------|
| Grade 10 | Social Sciences 10(a) and 10(b) |
| Grade 11 | Social Sciences 20(a) and 20(b) |
| Grade 12 | Social Sciences 30(a) and 30(b) |

However, students who have obtained the maximum of six credits at their grade level and wish to enroll in further modular (unit) courses would be eligible for credits at a lower grade level than those in which they are registered. Students seeking entrance to post-secondary institutions are advised to complete two (2) modular units at the “30” level, since receiving institutions will probably require 6 credits in Social Sciences 30.

In the interest of students who transfer to other schools during their high school careers, it is suggested that students’ school transcripts contain reference to specific titles of modular units completed.

Objectives

1. To develop an insight into the basic concepts of the discipline.
2. To develop an insight into specific modes of inquiry and skills unique to a particular discipline.
3. To develop an understanding of how knowledge is produced in a particular discipline.
4. To provide opportunities to experience the emotive qualities inherent to an interest-motivated approach to the study of a discipline.

GEOGRAPHY

Objectives

1. The student should acquire an understanding of the following major organizing concepts in geography: areal association, density, human occupancy, pattern, region, scale, spatial distribution, spatial interaction.
2. The student should acquire facility in the use of the geographer's mode of inquiry and skills such as the following:
 - a. the reading and interpretation of aerial photographs, maps, pictures, tables and graphs, and other written source materials.
 - b. field work processes of observation and recording.
3. The student should have the opportunity to develop positive attitudes in relation to the following topics:
 - a. interdependence of peoples
 - b. respect for similarities and differences of peoples
 - c. clarification of values in respect to other value systems
 - d. respect for scientific method of inquiry
 - e. knowledge of multiple causation

Primary References

Modular Unit I

Wolforth, J. and R. Leigh. *Urban Prospects*. Toronto: McClelland & Stewart, 1971.

Tomkins, G., T. Hills and T. R. Weir. *Canada, A Regional Geography*. (Second Edition). Toronto: W. J. Gage, 1970.

Modular Unit II

Kendall, Glendinning and McFadden. *Introduction to Geography*. New York: Harcourt, Brace & Jovanovich, (Note: Canadian supplier is Longman).

Course Content

Introductory Unit (To be taken prior to the study of Modular Unit I or II only if required.)

Skills and Concepts in Geography

1. **Map Reading and Atlas Skills**
 - a. Atlas
 - Latitude and Longitude
 - Time Zones
 - Scale
 - Legend
 - b. Topographical Maps
 - Grid Reference
 - Contours and contour interval
 - Landforms
 - Gradient
 - Profile
 - Symbols
 - c. Thematic Maps
 - Quantitative and Qualitative
 - Isopleths

- d. Other
 - Graphs and diagrams (interpolation)
 - Aerial photographs
- 2. **Movement of the Earth**
 - a. Rotation and Revolution
 - b. Seasons
 - c. Climate Zones
- 3. **Climate**
 - a. Elements of Climate
 - b. Factors influencing climate
 - Latitude
 - Elevation
 - Position of mountains
 - Proximity of water masses
 - Wind Systems
 - Ocean Currents
- 4. **World Geographic Systems**
 - a. Winds
 - b. Ocean Currents
 - c. Climate
 - d. Land use
 - e. Population distribution
 - f. Relationships

Modular Unit I

Theme 1: The Change in Settlement Patterns in the Local Area

- a. The neighbourhood and the city.
- b. The city in relation to neighbourhood and settlement patterns.
- c. Relationship of the urban industrial resources to the rural primary resources.
- d. The relationship of systems to the city.
- e. The **settlement patterns** of a particular town or city related to the physical features of the site and the **social characteristics** of the people.

Theme 2: Settlement Patterns in Western Canada

- a. The human occupancy of Western Canada
- b. Human occupancy regions of Western Canada
- c. Depth studies of regions

Theme 3: Settlement Patterns in Eastern Canada

- a. The human occupancy of Eastern Canada
- b. Depth studies of regions
- c. Studies of the larger regions in Eastern Canada
- d. Population (Summation)

Modular Unit II

Theme 1: World Patterns of Population and Settlement

- a. The human occupancy of Canada
- b. The human occupancy of the world
- c. Case studies in population and settlement

- d. Man's settlement types and patterns
- e. Cities of the world and world urbanization

Theme 2: **World Patterns of Man's Use of the Earth**

- a. Human economics
- b. Primitive hunting – fishing – collecting
- c. Pastoralism or livestock economy
- d. Agriculture of the world
- e. World industry and resources
- f. Manufacturing
- g. Japan: Case study of industrialization
- h. World transportation and commerce

Theme 3: **World Patterns of Physical Elements**

- a. The lithosphere
- b. Landforms
- c. Climate: elements, controls and regions
- d. Vegetation – soils

PSYCHOLOGY

Objectives

The objectives of the modules in psychology are designed to develop within the student the skills and understandings that make it possible for more effective living in our complex environment. The student's attention will focus on the scientific approach to understanding human behaviour so that he may appreciate more fully the reasons that underlie his own acts and those of his fellows.

Primary References

Engle and Snellgrove. *Psychology: Its Principles and Applications*. (6th edition). New York: Harcourt, Brace & Jovanovich, 1974.

Course Content

Modular Unit I. Personality and the Individual

Theme 1: **Introduction to Psychology**

- a. Definition
- b. The place of psychology among other sciences
- c. What psychology is not
- d. Psychology and hypnosis
- e. Parapsychology
- f. Methods of psychological study

Theme 2: **Personality**

- a. The development of personality
- b. Theories of personality
- c. Scientific techniques for measuring personality
- d. Projective techniques

Theme 3: **Behaviour**

- a. Development
- b. Physical development
- c. Motor development
- d. Language development
- e. Emotional development
- f. Social development

Theme 4: Intelligence

- a. The meaning of intelligence
- b. Individual tests of intelligence
- c. Group tests of intelligence
- d. Practical applications of intelligence tests
- e. Mental retardation
- f. Intellectually gifted children
- g. Criticisms of intelligence tests

Theme 5: Heredity and Environment

- a. Inherited characteristics
- b. Studies of heredity
- c. Heredity and maturation
- d. Influences of environment before birth
- e. Influences of environment after birth
- f. Interaction of heredity and environment

Theme 6: Biological Influences on Behaviour

- a. The nervous system
- b. Reaction time
- c. The brain
- d. Convulsive disorders
- e. Glands
- f. Emotional behaviour
- g. Instincts, or species — specific behaviour
- h. The effect of sleep on behaviour

Theme 7: Understanding Perception

- a. Attention
- b. Sensation and perception
- c. Vision
- d. Hearing
- e. Other sense fields
- f. Sensory deprivation

Modular Unit II. General Psychology

Theme 1: History of Psychological Schools of Thought

- a. Philosophical origin of psychology
- b. Beginnings of modern psychology
- c. Major approaches to understanding behaviour

Theme 2: Principles of Learning

- a. What is learning?
- b. Trial and error learning
- c. Classical conditioning
- d. Terms related to classical conditioning
- e. Operant conditioning
- f. Terms related to operant conditioning
- g. Operant conditioning and punishment
- h. Operant conditioning and programmed learning
- i. Learning by insight
- j. Controversial areas of learning

Theme 3: How to Learn Efficiently

- a. Transfer
- b. Other factors in learning efficiently

- c. The progress of learning
- d. Remembering
- e. Forgetting

Theme 4: The Process of Thinking

- a. Basic elements of thinking
- b. Concepts
- c. Uncritical thinking
- d. Creative thinking
- e. Imagining
- f. Reasoning
- g. Computer vs. human thinking
- h. Applying principles of learning to taking examinations

Theme 5: Facing Frustration and Conflict

- a. Frustration and conflict
- b. Types of conflict
- c. Desirable ways of responding to frustration and conflict
- d. Adjustment mechanisms
- e. Cognitive dissonance

Theme 6: Emotional Problems of Adolescents

- a. Inferiority
- b. Daydreaming
- c. Thrills and thrill-seeking
- d. Family conflicts
- e. Dating and romantic love
- f. Assuming the roles of men and women

Theme 7: Behaviour Disorders and Their Treatment

- a. Behaviour disorders in our society
- b. Neurotic behaviour
- c. Psychosis
- d. Functional psychosis
- e. Organic psychosis
- f. Personality disorders
- g. The treatment of behaviour disorders

Theme 8: Career Opportunities in Psychology

- a. Educational psychology
- b. Clinical psychology
- c. Physiological psychology
- d. Industrial psychology
- e. Social psychology

Modular Unit III. Experimental Psychology

Theme 1: Experimental Psychology

- a. Psychology as an experimental science
- b. Psychological research

Theme 2: Statistics

- a. Organizing data
- b. Normal distribution
- c. Percentiles, deciles, quartiles
- d. Measures of central tendency
- e. Measures of variability
- f. Correlation
- g. Validity and reliability

Theme 3: **Research Methods**

- a. Research steps
- b. Laboratory experimentation

Theme 4: **Research Projects**

- a. Research — implementation of practical applications
- b. Project flexibility
- c. Evaluation
- d. Suggested design

RELIGIOUS STUDIES

Objectives

The objective of this course is to provide an opportunity, if desired, to experience a number of cultural, historical and contemporary issues from a religious point of view, and through the study of Religion as a separate discipline to “develop a philosophy based upon values conducive to ethical and moral behaviour and reflected in an understanding of human worth.” (Government of Alberta, **Report of the Commission on Educational Planning**).

References

Teacher References

- 1) Evans, Moynes and Martinello. *What Man Believes*. McGraw-Hill Ryerson, 1973.
- 2) Titus. *Living Issues in Philosophy*. Van Nostrand Reinhold, 1970.
- 3) Titus and Keeton. *Ethics For Today*. Van Nostrand Reinhold, 1973.

Modular Unit I (World Religions)

- 1) Evans, Moynes and Martinello. *What Man Believes*. McGraw-Hill Ryerson, 1973.
- 2) Nigosian. *World Religions*. Copp-Clark, 1973.

Modular Unit II (Religious Ethics)

- 1) Beck. *Ethics*. McGraw-Hill Ryerson, 1972.

Modular Unit III (Search for Meaning)

- 1) Frankl. *Man's Search for Meaning*. Simon and Schuster, 1968.

Course Content

Modular Unit I. World Religions

- a) Meaning of religion
- b) Development of religion
- c) Faith is the core element of religion
- d) Major religions of the world
- e) Basic beliefs and practices of the major religions of the world

Modular Unit II. Religious Ethics

- a) Concept of ethics
- b) Meaning of religious ethics
- c) Ways in which the adolescent attains self realization
- d) How the adolescent works out his identity in society
- e) How certain specific contemporary issues affect the adolescent

Modular Unit III. Search For Meaning

- a) Man has basic needs
- b) The need to search for meaning in life
- c) Ways in which man searches for meaning in life
- d) Faith adds a dimension to man's quest for meaning
- e) Faith is an ultimate concern in whom many have faith
- f) Because faith is a growth process, crisis will be encountered
- g) Man tends to depend upon others in his growth in faith
- h) Faith must manifest itself through action

SOCIOLOGY

Objectives

The objectives of the modules in sociology are designed to develop within the student a better understanding of group behaviour. This understanding should be based on fact rather than opinion. The sociological perspective focuses on "what is" rather than "what ought to be". The student should be able to analyze occurrences around him objectively. He should feel himself to be a part of society, understand its influence on his life, and visualize his role in societal change.

Primary References

One of:

Horton, Paul B. and Chester L. Hunt. *Sociology*. (Second Edition). McGraw-Hill Ryerson, 1968.

Thomas, W. Laverne and Robert J. Anderson, *Sociology: The Study of Human Relationships*. Harcourt, Brace & Jovanovich, 1972.

Canadian Content

One of:

King, Allan J. C. and Walter W. Coulthard. *Social View of Man — Canadian Perspectives*. Wiley & Sons, 1972.

Rogers and Sheffe. *Dimensions of Man*. Macmillan of Canada, 1972.

Skeoch, Allan and Tony Smith. *Canadians and Their Society*, McClelland & Stewart, 1973.

Course Content

Modular Unit I. Culture and Society

Theme 1: The Discipline of Sociology*

- a. Sociology as a field of study
- b. Scientific methods of study

Theme 2: Culture

- a. Culture
- b. Cultural values, norms, and sanctions
- c. Deviations from cultural norms
- d. Culture and personality

Theme 3: Society and Social Class

- a. Organization of society
- b. Social stratification
- c. Social class
- d. Changes in status — social mobility

Modular Unit II. Institutions, Minorities and Social Behaviour

Theme 1: The Discipline of Sociology*

- a. Sociology as a field of study
- b. Scientific methods of study

Theme 2: Institutions

- a. Social institutions
- b. The family
- c. The institution of religion
- e. Sociology of education

Theme 3: Minorities

- a. Minority groups
- b. Race and ethnic relations

Theme 4: Influencing Behaviour

- a. Social behaviour
- b. Public opinion, mass communication and propaganda
- c. Social control and deviation

Theme 5: Role and Status

- a. Role and status

Modular Unit III. Application of Sociological Concepts

Theme 1: The Discipline of Sociology*

- a. Sociology as a field of study
- b. Scientific methods of study

Theme 2: Sociology Applied

- a. Applied sociology
- b. Crime and delinquency
- c. Youth rebellion
- d. Sociological phenomena

Theme 3: Sociology and the Individual

- a. Applied sociology and the individual
- b. Determining your goals
- c. Your educational analysis
- d. Mate choice and marriage

Theme 4: Changes in Culture

- a. Social and cultural change
- b. Social movements

* Since each modular unit is to be independent and non-sequential, the first theme is repeated. A student may not have to take it more than once.

SOCIAL STUDIES

Rationale

Alberta's social studies curriculum (Grades I-XII) is premised on the assumption that schools must help students in their quest for a clear, consistent, and defensible system of values. Two inter-related implications of this assumption for social studies instruction stand out: firstly, students must be enabled to explore and assess the nature of values that influence their personal and social lives; secondly, students must be assisted to develop the ability to make decisions pertinent to both their individual beings and their roles as active participants in their physical and social environments.

Values to live by

In keeping with the basic tenets of democracy (and with optimism about the nature of man and the efficacy of democratic ideals), the social studies program invites open inquiry into the definition and application of individual and social values. Such inquiry will offer students **experience in living as preparation for living**. It cannot be assumed that the ability to make decisions of either a personal or social nature is a skill that children are either born with or acquire incidentally. Rather, it is a skill that is developed as children acquire appropriate knowledge and analyze and clarify values, attitudes and feelings that are contingent upon situations and issues. Stated differently, it might be said that knowledge is an essential component of the decision-making process but is not in and of itself sufficient. Values, attitudes, and feelings frequently determine what knowledge we will accept, and consequently, the nature of decisions that we make. It is necessary, therefore, for students to gain experience in identifying, clarifying, and assessing values, and establishing how they relate to the knowledge derived. In this way, children will come to know their own ideas and feelings as well as those of their peers and the adult generation; they will deal not only with "what is" but also with "what ought to be" and will acquire those skills they will need as intelligent shapers of their world.

ATTENDING TO AFFECTIVE AND COGNITIVE OBJECTIVES

A. The Valuing Process

Priority on valuing

Consistent with the above rationale, the objectives of the social studies program¹ place high priority on the valuing process. The valuing process involves three basic skills.² Students in the Alberta social studies should demonstrate that they are:

¹Please note that the objectives which follow are expressed in behavioral terms. They indicate the processes in which students should engage and, in a general way, identify the substantive content to which students' behavior should relate. In other words, the objectives include both processes and content.

²Raths, Louis, et al., *Values and Teaching* (Columbus, Ohio: Charles E. Merrill & Co., 1966).

Choosing —

1. Identifying all known alternatives.
2. Considering all known consequences of each alternative.
3. Choosing freely from among alternatives.

Prizing —

4. Being happy with the choice.
5. Affirming the choice, willingly and in public if necessary.

Acting —

6. Acting upon the choice.
7. Repeating the action consistently in some pattern of life.

As students engage in the valuing process, the experience will involve both emotional reactions and intellectual understandings. It is essential to distinguish these affective and cognitive capacities and to direct educational effort along both dimensions.³

B. Affective Objectives

Affective objectives emphasize a feeling tone, an emotion, or a degree of acceptance or rejection. To choose, prize and act consistently and effectively, students should demonstrate that they are:

- Aware of values, willing to take notice of values, and giving controlled or selected attention to values
- Responding to values with openness, willingness and satisfaction
- Accepting values, preferring values and committing themselves to values
- Conceptualizing their own values and organizing a value system
- Becoming characterized by a value or value complex.⁴

The values referred to above should, at the awareness and response levels, include a wide range of individual and social values. Students eventually should accept, prefer, and commit themselves to certain of these values, while rejecting others. Finally, they should conceptualize their own values, organize a value system, and through their actions, become characterized by a particular value or value complex.

³Scriven, Michael, "Student Values as Educational Objectives" (West Lafayette, Ind.: Social Science Education Consortium, 1966) p. 18.

⁴Krathwohl, David, et al., *Taxonomy of Educational Objectives: Affective Domain* (New York: David McKay Co., Inc., 1964).

A powerful means of attaining these affective objectives is to have students confront real problems that involve conflicting values. Such problems may be referred to as value issues. Focusing upon value issues can enable students to clarify their own values and to recognize the value positions of others. Peer relationships, family matters, work, politics, religion, money, recreation, morality, culture, and other problem areas are fertile sources of value issues. The most potent of value issues will require students to examine their own behavior relative to:

1. The dignity of man
2. Freedom
3. Equality
4. Justice
5. Empathy
6. Loyalty
7. Other values

C. Cognitive Objectives

Cognitive objectives involve the solving of some intellectual task. The choosing, prizing and acting phases of the valuing process require that each student develop cognitive skills that will enable him to work with others in the solving of social problems. The cognitive skills which are exercised in problem solving are varied and complex. These skills may be summarized as follows.⁵ Students should be able to:

- Recall and recognize data which are pertinent to social problems
- Comprehend pertinent data (This skill includes the ability to translate, interpret and extrapolate from data.)
- Analyze pertinent data in order to identify elements, relationships and organizational principles
- Evaluate pertinent data in terms of internal and external criteria
- Synthesize pertinent data in order to create an original communication or propose a plan of action
- Apply pertinent data in the solving of social problems

⁵Bloom, Benjamin, et al., *Taxonomy of Educational Objectives: Cognitive Domain* (New York: David McKay Co., Inc., 1956) and Sanders, Norris M., *Classroom Questions: What Kinds?* (New York: Harper and Row 1967). Note that skills have been listed in an order more closely resembling the problem solving process. Bloom's *Taxonomy* lists skills according to difficulty; the order being recall, and recognition, comprehension, application, analysis, synthesis, and evaluation.

The “data” referred to in the above objectives might be drawn from everything man knows, believes, and can do — both formally structured knowledge from the disciplines and informally structured knowledge from ordinary experience.⁶ Such data include:

*Categories of
knowledge
content*

- Knowledge of specific terminology and facts
- Knowledge of ways and means of dealing with social problems
- Knowledge of concepts, generalizations, theories and structures.⁷

Knowledge of specific terminology and facts should serve as a basis for dealing with social problems and understanding concepts, generalizations, theories and structures.

Knowledge of ways and means of dealing with social problems should include the ability to:

*Problem
solving
method*

1. Identify and clarify the problem
2. Formulate hypotheses
3. Collect data
4. Classify data
5. Analyze data and evaluate the desirability and feasibility of taking action on the problem
6. Propose a course of action and examine the desirability and feasibility of taking action on the problem.⁸

Knowledge of ways and means of dealing with social problems should also include the ability to:

Social skills

1. Interpret the feelings and ideas of others
2. Respond to the feelings and ideas of others in a manner appropriate to the occasion
3. Express one’s own feelings and ideas to others
4. Cooperate with others, though not to the extent of compromising basic values.

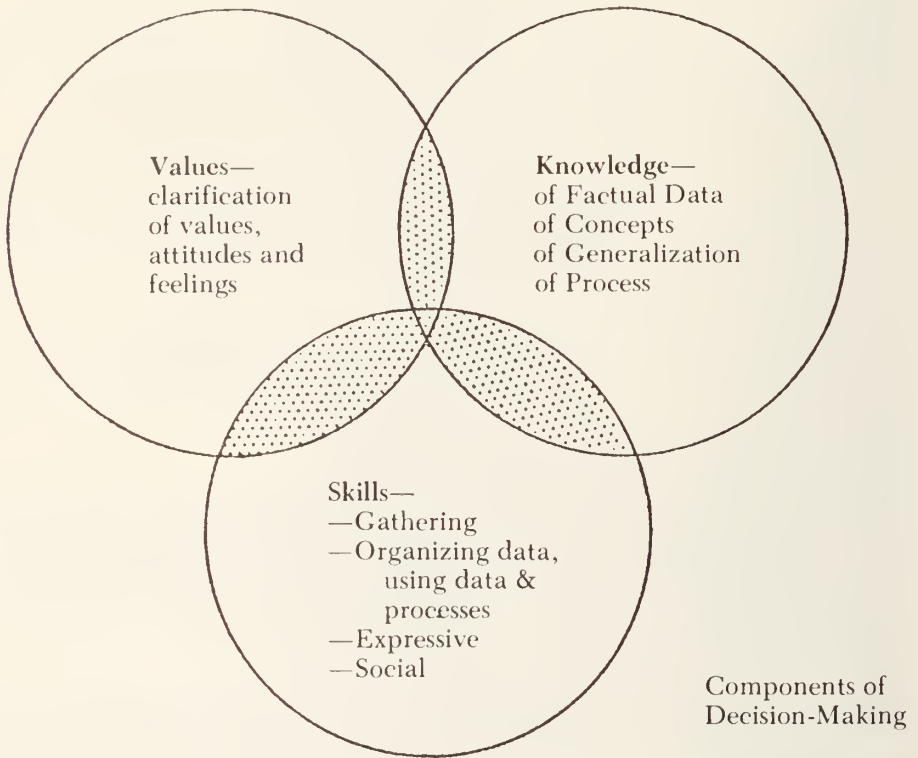
⁶Johnson, Mauritz, *The Translation of Curriculum into Instruction* (Ithaca, N.Y.: Cornell University, 1968), p. 2.

⁷Bloom, *op. cit.*, p. 62 ff.

⁸Simon, Frank. *A Reconstructive Approach to Problem Solving in the Social Studies* (Calgary: The University of Calgary, 1970). The Simon model differs from most methods of problem solving in that it leads to action on the problem.

INTER-RELATEDNESS OF VALUES, KNOWLEDGE AND SKILLS

The inter-relatedness of the values, knowledge, and skills components of the Alberta social studies curriculum might be diagrammatically represented as follows:



In the decision-making process, **knowledge** in its various forms is essential but dependent for its existence, validity and application upon the skills used to obtain, organize and apply it, and the influence of pertinent values. Similarly, **skills** of a varied nature must be developed to facilitate sound decision-making, for these are the vehicle by which knowledge is obtained and values explored. Finally, **values, attitudes, and feelings** are explored, clarified, and assessed by the utilization of skills and in the light of an ever-expanding knowledge base.

Knowledge of concepts, generalizations, theories and structures should result from students synthesizing the specific data gathered or produced while confronting value issues. Some of the major concepts needed in studying human behavior are outlined below. These concepts should be used by students in developing generalizations and theories which seek to explain people's values.

*Inter-
disciplinary
base of
social studies
concepts*

INTERACTION is a key concept in the understanding of social problems. History, geography and the social sciences describe in part man's interaction with his social and physical environment.

1. **ENVIRONMENT** is, itself, an important

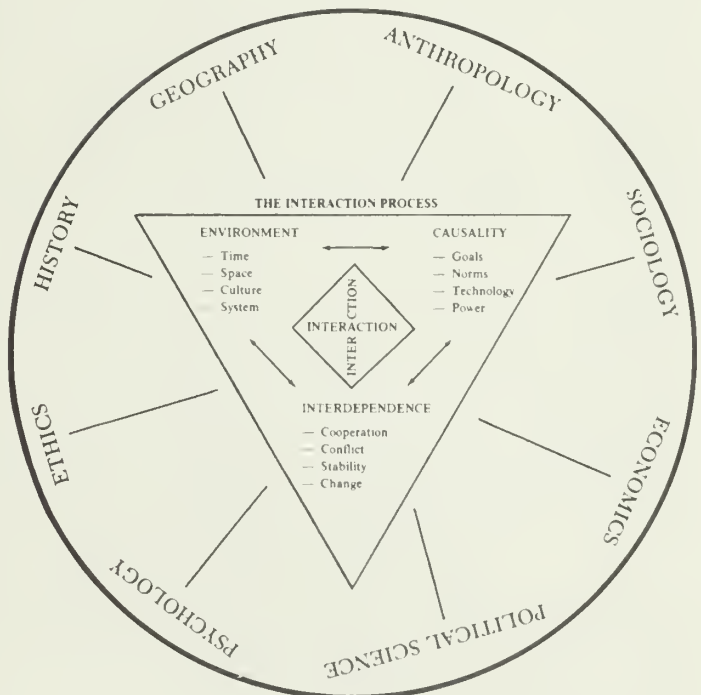
concept which can be defined in terms of **Time, Space, Culture** and **Systems**.

2. Man's interaction with his environment produces **CAUSAL RELATIONSHIPS**. In order to understand causality, one needs to recognize that behavior is affected by **Goals, Norms, Technology, and Power**.
3. Since all man's interactions involve cause and effect relationships, he lives in a state of **Interdependence**. Interdependence may take the form of **Cooperation** and/or **Conflict** and may produce **Stability** and/or **Change**.

A diagrammatic representation of the interaction process appears opposite.

*The
spiralling
of concepts*

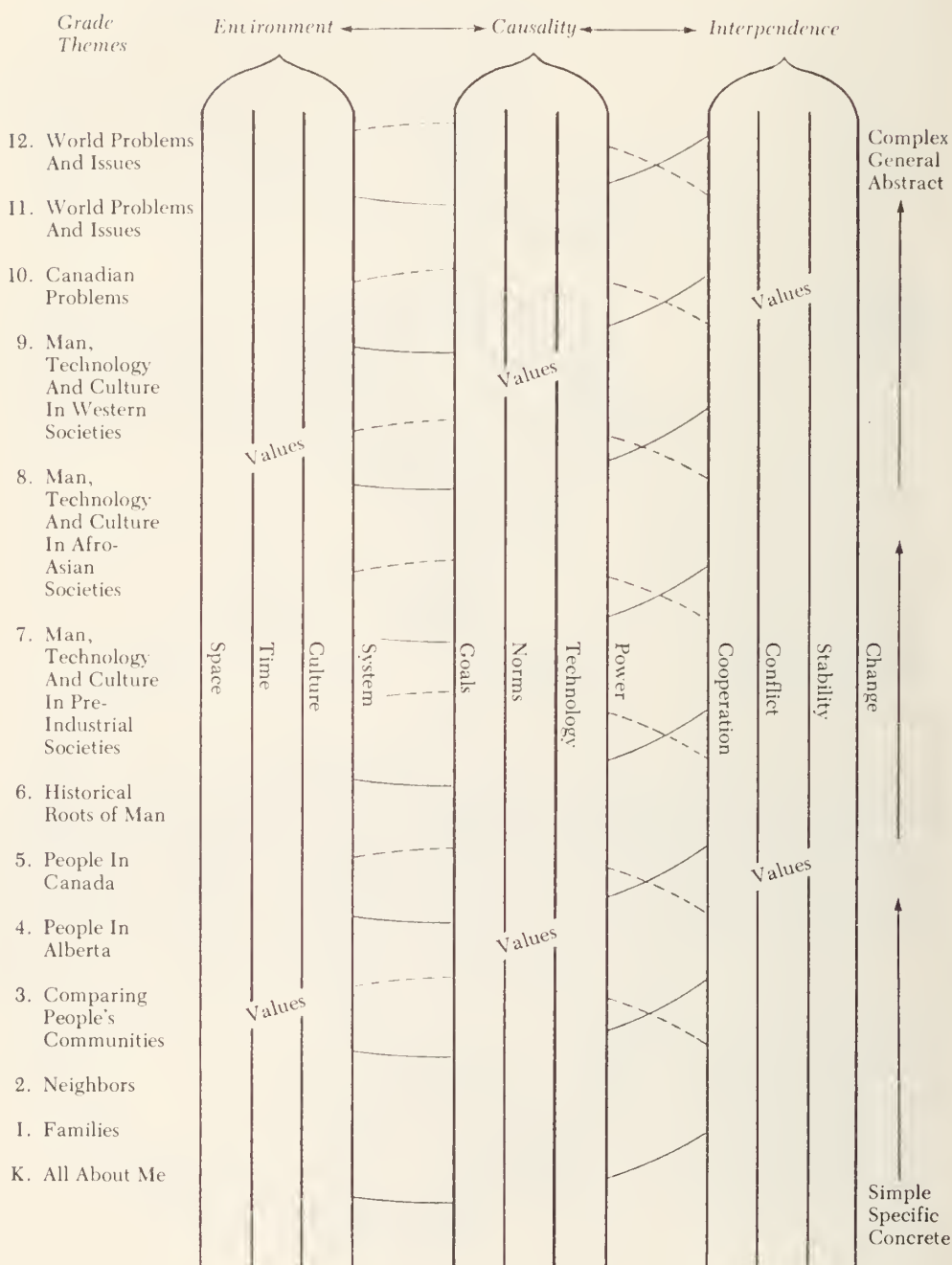
These and other concepts should be studied in more than one grade level on the understanding that lower grades will attend to the concept in a specific, concrete and simple manner. Succeeding grades will treat each concept in greater generality, abstractness, and complexity.⁹ A diagrammatic representation of spiralling concepts is shown on page 216.



⁹Taba, Hilda, *Teachers' Handbook for Elementary Social Studies* (Don Mills, Ontario: Addison-Wesley Company, 1967), Chapter 4.

THE SPIRAL OF CONCEPT DEVELOPMENT

The Interaction Process



Values: Dignity of Man, Freedom, Equality, Loyalty, Justice, Empathy, etc.

Planning For The Attainment of Multiple Objectives

The preceding statement of objectives offer only a general indication of the processes and content of learning opportunities in the social studies. **More detailed planning of learning opportunities is the responsibility of each teacher and class.** All learning opportunities must be consistent with the objectives outlined above, whether the learning opportunity arises from the structured scope and sequence or in connection with a problem of current interest.

A. Structured Scope and Sequence

*Two-thirds
time on
structured
scope and
sequence*

Approximately two-thirds of social studies class time will be spent inquiring into themes, value issues and concepts which fall within a scope and sequence specified by the Department of Education. This scope and sequence is very general, thus permitting teachers and students to select learning opportunities according to their own needs and interests. Topics and themes for each grade are indicated below:

Kindergarten — All About Me

Grade I — Families

- Analysis of family living through case studies of, **for example**, a contemporary family, a family of long ago, an Afro-Asian family, and other families

Grade II — Neighbours

- Analysis of interactions which occur among, **for example**, the local neighbours, rural and urban neighbours, neighbours in other cultures

Grade III — Comparing People's Communities

- Comparison and contrast of community life in, **for example**, a modern-day Indian or Eskimo community and a North-American megalopolis; a village in Africa or Asia, and a community in the Pacific, or tropical South America; a Mennonite or Hutterite community and other communities which lend themselves to comparison and contrast

Grade IV — People in Alberta

- Historical, economic, sociological and/or geographic analysis of Alberta's people, including comparison and contrast with other world areas that have similar historical, geographic and/or economic bases, **for example**, Australia, Argentina, U.S.S.R., Middle East oil producers, Western U.S.A. and other areas

Grade V — People in Canada

- Sample studies to analyze historical and/or

contemporary life in Canadian regions, **for example**, people in an Atlantic fishing port, people in a French-Canadian mining town or farm community, people in a St. Lawrence Seaway port, people in an Ontario manufacturing center, people in a Prairie farm or oil town, people in a British Columbia fruit or forestry industry, people in a Western distribution center, people in a coastal city, people in a Northern mining town, and other sample studies

Grade VI — Historical Roots of Man

- Anthropological analysis and social history of early civilizations in, **for example**, The Mediterranean area (e.g., Egypt, Greece, Rome), The Far East (e.g., India, China), The Americas (e.g., Incas, Mayans, Aztecs, North American Indian), and Africa (e.g., Numidians, Nubians, or other tribes).

Grade VII — Man, Technology and Culture in Pre-Industrial Societies

- Conceptual understanding of **Man, Technology** and **Culture** through case studies of primitive, pre-industrial societies to be selected by teachers and students

Grade VIII — Man, Technology and Culture in Afro-Asian Societies

- Depth studies of societies selected from Africa, Asia (excluding the U.S.S.R.), the Middle East and Pacific Islands

Grade IX — Man, Technology and Culture in Western Societies

- Depth studies of societies selected from the Americas (excluding Canada), Europe, all of U.S.S.R., Australia and New Zealand

Grade X — Canadian Problems

- Historical, economic, sociological, political problems facing Canada

Grade XI — World Problems and Issues

- Tradition versus Change
- Population and Production

Grade XII — World Problems and Issues

- Political and Economic Systems
 - Conflict and Cooperation

B. Problems of Current Interest

*One-third
time
unstructured*

Approximately one-third of class time in social studies may be devoted to problems that are of current interest to students and teachers. The Department of Education does not intend to structure the use of this

one-third time. Problems which meet the criteria which follow may arise as extensions of the main themes and value issues for each grade. They may relate to problems of individual students, the school, the community, or the world, and may concern the past, the present and/or the future. A given problem may be studied by the whole class, by a group, or by individual students. It is important that a record be kept of the problems studied by each student throughout his or her school career.

Joint Planning

Students and teachers should jointly plan the use of the one-third time. **Generally speaking, the teacher should view the one-third time as an opportunity for students to develop independence and responsibility.**

The amount of teacher leadership required in the planning and use of the one-third time will vary according to the ability, experience, and maturity of the class. The teacher's influence should be exerted in a manner and to a degree consistent with this objective.

Distribution of time

The one-third time may be distributed over the school year (or semester) in any way that students and teachers see fit. Three of the many possible alternatives are:

1. One time block, accounting for one-third of total class time, taken at any point during the year
2. Two- or three-week "units" of time, accounting for one-third of total class time, taken at various points during the year
3. Propitious occasions, accounting for one-third of total class time, taken at opportune times during the year.

C. Criteria for Selecting Learning Opportunities

In selecting the processes and content for day-to-day experiences in the social studies curriculum — **whether for the two-thirds time broadly structured by the Department of Education or for the one-third time devoted to problems of current interest** — teachers and students should attend to the following criteria:

Futurity

1. Does the experience have futurity? That is, can it contribute to the attainment of affective and cognitive objectives?
 - a) Does it involve a pertinent **value issue**?
 - b) Can it contribute to the development of **social and/or inquiry** skills?
 - c) Does it provide for growth in students' understanding of **concepts**?

- d) Does the experience fit as part of a sequence which will lead to a reasoned pride in **Canada** tempered with a world view and an understanding of significant **social problems**?

Relevance

2. Is the experience **relevant** to the needs and interests of students?

Materials

3. Are **data and materials** available and/or can students gain experience through gathering primary data?

Overlap

4. Does the experience **avoid** the disadvantageous **overlap** and repetition of experiences in earlier or later grades?

SOCIAL STUDIES 10, 20, 30

Reference Materials

Please refer to the publication, **Resource Materials for Secondary Social Studies: An Annotated List of Selected Titles for the Basic Program** which is available from the Department of Education.

SOCIAL STUDIES 10

CANADIAN STUDIES

This course deals with perplexing value issues facing contemporary Canadian society. Value issues should be investigated with the aid of concepts and processes from history, geography and the social sciences.

All the problems studied in the course, national or international, should be studied as they appear in the Canadian context, as the new social studies curriculum includes problems of a strictly international or global nature at other grade levels.

It is suggested that a minimum of three value issues should be studied: one from value Issues I, II, III, IV; one from Value Issues V, VI, VII; and one from Value Issues VIII, IX, X. One-third of the time may be devoted to the study of problems of current interest to students and teachers.

Issues Relating to “Population and Production”

1. Can the poor nations of the world expect to achieve a higher standard of living?
2. Should the “revolution of rising expectations” be encouraged?

Criteria for the Selection of Case Studies

1. Societies may be selected from any geographical area, past or present.
2. Selected societies or themes must have clearly recognizable problems of population and production.
3. Research data conclusive to inquiry-learning must be available.
4. Care must be exercised to avoid overlap with themes studied at previous or succeeding grade levels.

VALUE ISSUES

| | |
|---|---------------------------------|
| I. — Should the endowed and more advanced regions of Canada contribute to the less developed regions of Canada? | Canada Internal |
| II. — Should poverty be tolerated in the affluent Canadian Society? | |
| III. — Should we encourage the process of urbanization? | Social Economic |
| IV. — Should Canadians reject a trend toward high mass-consumption? | |
| V. — Should Canada move toward greater national unity? | Canada Internal |
| VI. — Should Canada have two official languages? | |
| VII. — Should we encourage greater participatory government in Canada? | Political |
| VIII. — Should Canada pursue a policy of non-alignment? | Canada External |
| IX. — Should Canada move toward greater political and economic autonomy? | |
| X. — Should Canada “massively” increase her foreign aid? | Social Political Economic |

SOCIAL STUDIES 20

WORLD PROBLEMS AND ISSUES

The Social Studies 20 course includes the following two units which are structured by the Department of Education and allows one-third time which may be used for the study of problems that are of current interest to students and teachers. The two structured units and the problems of current interest may be taken in any time sequence which the teacher deems suitable.

UNIT ONE

POPULATION AND PRODUCTION

Major Problem

Can the earth support its growing population?

Objectives

The objective of this unit is to develop an awareness of a continuing concern for and a rational approach to problems that arise out of the population increase and scarcity of resources.

Definition of the Problem Through Development of Concepts

Is there a scientifically-measured basis for the widely-expressed fears of a “population explosion”, or is there a “credibility gap”?

1. Viewpoints — philosophical, economic, scientific, historical and theological sources
2. Population distribution and growth
3. Systems of production
4. Systems of economy
5. Relationship between population and resources.

UNIT TWO

CHANGE VERSUS TRADITION

Major Problem

Have traditions and departures from traditions served to enhance the dignity of man?

Objectives

1. To show that the most intrinsic values of a people are subject to influence and eventual change as a result of cultural variations, and that these same forces are operative in any society, historic or modern.
2. To show that any society experiences the forces of change and to show how its traditions have yielded to, and resisted these forces.
3. To show the inter-relationship of cultural patterns and values.
4. To be able to identify the values of a society and understand how these values influence the activities of the society.

Definition of the Problem Through the Development of Concepts

1. The phenomenon of change (concept)
2. Forces of change (causes)
3. Consequences of change vs. tradition

Themes Illustrative of the Problem, "Tradition vs. Change"

Teachers may choose from the following themes those which seem best to attain the above objectives. The number of themes to be developed is left to the direction of teachers.

1. Religion
2. Social Groups
3. Law
4. Creative Expressions (Art Forms)
5. Education

Value Questions (Summary)

1. Should a society attempt to maintain its traditions?
2. What is the relevance of change and/or tradition to:
 - a) society?
 - b) me?
3. What should be the criteria for accepting change?

Criteria for Selecting Societies and Themes to be Studied

1. Societies may be selected from any geographical area, past or present.
2. Selected societies or themes must have clearly recognizable forces of tradition and change.
3. Research data conclusive to inquiry-learning must be available.
4. Care must be exercised to avoid overlap with themes studied at previous or succeeding grade levels.

SOCIAL STUDIES 30

WORLD PROBLEMS AND ISSUES

The Social Studies 30 course includes the following two units which are structured by the Department of Education and allows one-third time which may be used for the study of problems that are of current interest to students and teachers. The

two structured units and the problems of current interest may be taken in any time sequence which the teacher deems suitable.

UNIT ONE

POLITICAL AND ECONOMIC SYSTEMS

Economic Systems (General)

1. Basic problem of scarcity
2. Answers to basic economic questions
 - a) What should be produced?
 - b) How should it be produced?
 - c) For whom should it be produced?
3. Systems change

Economic Models (Economic System in its Basic Form Showing Relationship Between Elements)

1. Market
2. Command
3. Traditional

Chief Value Issue: Which economic system is best?

Political Systems

1. Why do political systems exist?
2. Problems faced by political systems
 - a) Leadership — selection and control
 - b) Responding to demands
 - c) Decision-making process involved
 - d) Institutions
 - e) Application of decisions
 - f) Role of the citizen
 - g) Processes of continuation of change

Political Models

1. Totalitarian Polity
2. Democratic Polity
3. Traditional Polity

Chief Value Issue: Which political system is best?

Analytical Case Studies

Suggestion for the examination of case studies

- a) The purpose of case studies is to apply the concepts developed in the previous sections of the unit.
- b) Wherever possible, students should be expected to make value judgments about ideas developed in the case studies.
- c) Students should identify the various adaptations of theory to actual situations.
- d) Establish a working model for evaluating the various features of economic and political systems in the case studies.

UNIT TWO

CONFLICT AND CO-OPERATION

International Conflict

1. Basic reasons for international tension/conflict
 - a) Ideological
 - b) Economic
 - c) Political
 - d) Cultural
 - e) Religious
2. The nature of war in the 20th Century
 - a) Attitudes towards war
 - b) Kinds of war
 - c) Technology in war
 - d) Course of war
 - (1) Initiation
 - (2) Interaction
 - (3) Termination
3. Effects of war
 - a) Political
 - b) Economic
 - c) Cultural
4. Case studies of a variety of wars which have occurred in the 20th Century to illustrate the ideas examined in the preceding sections of the unit
5. Value positions associated with international conflict

Chief Value Issue: Is war a legitimate means of settling disputes among nations?

International Co-operation

1. Basic reasons for international co-operation
 - a) Economic
 - b) Political
 - c) Cultural
2. Nature of international co-operation in the 20th Century
 - a) Attitudes towards co-operation
 - b) Kinds of co-operation
 - c) Effect of technology on co-operation
3. Results of international co-operation in the 20th Century
 - a) human welfare
 - b) Security
4. Case studies of a variety of examples of international co-operation in the 20th Century to illustrate the ideas examined in the preceding sections of the unit
5. Value positions associated with international co-operation

Chief Value Issue: Are supranational bodies the answer to international conflict?

French As A Second Language

French 10

- * A-LM Level 1 (Revised Edition)
or
- * *Ecouter et Parler* (Revised Edition 1970)
or
- French for Mastery, Level One*
- * *Voix et Images de France*, Premier Degré

French 20

- * A-LM Level I (revised Edition)
and
- * A-LM Level II (Revised Edition)
or
- * *Ecouter et Parler* (Revised Edition 1970)
or
- French for Mastery, Level 2*
or
- * *Voix et Images de France*

French 30

- * A-LM Level II (Revised Edition)
or
- * *Chez les Français*
or
- French for Mastery, Level 2*
or
- * *Voix et Images de France*, Premier Degré
(See also "Additional Resources", page 157)

French 11

- * A-LM Level I (Revised Edition)
and
- * A-LM Level II (Revised Edition)
or
- * *Ecouter et Parler* (Revised Edition 1970)
or
- * *Voix et Images de France*, Premier Degré
or
- Le Français International, deuxième version*
(Book 4)

French 21

- * A-LM Level II (Revised Edition)
or
- * *Chez les Français*
or
- Le Français International, deuxième version*
(Book 5)
or
- * *Voix et Images de France*, Premier Degré
(See also "Additional Resources", page 157)

* Please note that A-LM French, *Ecouter et Parler*, and *Voix et Images de France* will be phased out in three years.

German As A Second Language

German 10

A-LM, Level One (Second Edition)

or

**Verstehen and Sprechen* (1962)

or

Verstehen und Sprechen (1970)

German 20

A-LM Level One (Second Edition)

and

A-LM Level Two (Second Edition)

or

**Verstehen and Sprechen* (1962)

or

Verstehen und Sprechen (1970)

and

Sprechen und Lesen (1963)

or

Foundation Course in German
(Revised Edition)

German 30

A-LM, Level Two (Second Edition)

or

Foundation Course in German
(Revised Edition)

(See also "Additional Resources", page 157.)

Ukrainian As A Second Language

Ukrainian 10

Ukrainian by the Audio-Visual Method
Part I

or

Ukrainian for Beginners and
Conversational Ukrainian

Ukrainian 20

Ukrainian by the Audio-Visual Method,
Part I

or

Conversational Ukrainian and
appropriate supplementary materials

Ukrainian 30

Conversational Ukrainian and appropriate
involvement and support materials
(See also "Additional Resources", page 157.)

* Limited supply.

German 31

German 31 is intended to further the objectives suggested for the learning of a second language, namely cultural understanding and effective communication. German 30 is a prerequisite or corequisite for German 31.

The language content and the linguistic and attitudinal behaviours outlined in LEVEL THREE of the curriculum guide contain the basic core suggested for the *advanced* program in German.

Principles, guidelines and suggested instructional materials for implementing German 31 are included in the document entitled *German 31, Supplement to German as a Second Language*, Tentative Curriculum Guide, 1974, Levels 1, 2 and 3 (Secondary).

UKRAINIAN AS A SECOND LANGUAGE

Suggested Expectations For Ukrainian At The End of Level One

The curricular outline included on pages 4-15 of the curriculum guide⁸ identifies the language content to which students will be exposed during LEVEL ONE, and it suggests the linguistic and attitudinal behaviours expected of students at the end of this level of language learning.

LEVEL ONE is considered to be an *initial* experience in learning the Ukrainian language and it may occur at any grade(s) of the student's career in the secondary school. The attainment of LEVEL ONE proficiency may occur in a variety of ways, such as the successful completion of:

- a. a three-year program in the junior high school,
- b. a two-year program in the junior high school, equivalent in time exposure to three years of study,
- c. a one-year program in the senior high school, during which students learn the concepts and develop the skills and attitudes suggested for LEVEL ONE.

The successful completion of LEVEL ONE by a student should result in his subsequent placement in a LEVEL TWO program, i.e. Ukrainian 20.

Suggested Expectations For Ukrainian At The End of Level Two

The curricular outline included on pages 16-25 of the curriculum guide⁹ identifies the language content to which students will be exposed during the *intermediate* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that LEVEL.

This *intermediate* LEVEL is considered to be LEVEL TWO. The completion of LEVEL TWO should be equated with successful achievement in Ukrainian 20 and Ukrainian 30.

⁸*Ukrainian as a Second Language*, Tentative Curriculum Guide, Levels 1, 2 and 3 (Secondary), 1974.

⁹*Ibid.*

Suggested Expectations For Ukrainian At The End of Level Three

The curricular outline included on pages 26-32 of the curriculum guide¹⁰ identifies the language content to which students will be exposed during the *advanced* LEVEL of language learning and suggests the linguistic and attitudinal behaviours expected of these students at the end of that level.

The *advanced* LEVEL is considered to be LEVEL THREE and its implementation as a course should emphasize a concern for understanding the Ukrainian way of life as well as improving the skills previously acquired. **Ukrainian 31 is the course to be implemented at LEVEL THREE.** Ukrainian 30 is a prerequisite or corequisite for Ukrainian 31.

Ukrainian 31

Ukrainian 31 is intended to further the objectives suggested for the learning of a second language, namely cultural understanding and effective communication. Ukrainian 30 is a prerequisite or corequisite for Ukrainian 31.

The language content and the linguistic and attitudinal behaviours outlined in LEVEL THREE of the curriculum guide contain the basic core suggested for the *advanced* program in Ukrainian.

Principles, guidelines and suggested instructional materials for implementing Ukrainian 31 are included in the document entitled *Ukrainian 31, Supplement to Ukrainian as a Second Language*, Tentative Curriculum Guide, 1974, Levels 1, 2 and 3 (Secondary).

RECOMMENDED INSTRUCTIONAL MATERIALS¹

The outline of language content and linguistic and attitudinal behaviors for LEVELS ONE and TWO in each of the curriculum guides for French, German and Ukrainian contain the basic core suggested for an *initial* and *intermediate* program in these languages. Teachers are advised to examine the instructional materials and select structures, concepts and expressions that correspond to the Program of Studies and curriculum guides. As lessons vary in substance, it is important to avoid a materials-centered, page by page, lesson by lesson coverage.

In schools where students continue into French 11 and French 21, it is recommended that students be exposed to more than this suggested core, and that they be given opportunities to develop greater fluency in French than if they were to continue with French 20 and French 30.

No core is suggested for French 11 and French 21, but students completing French 11 should have been exposed to a core at least equivalent to French 20, while students in French 21 should have been exposed to a core at least equivalent to French 30. It is also expected that students having completed French 21 will be more proficient in French than students having completed French 30.

1 In schools employing more than one instructional series in a sequential second language program, it is recommended that a curriculum plan be prepared to include objectives, content areas and evaluation procedures for each course. This would help to avoid duplication of content and ensure continuity in a sequential program.

ADDITIONAL RESOURCES

In order to encourage students to meet the expectations suggested for LEVELS ONE, TWO and THREE, teachers are invited to select and adopt from the instructional materials listed above, and to provide for a wide variety of supplementary resource materials. A selection of resource materials for French, German and Ukrainian has been identified in the following publications:

Resource Materials — A Listing Prepared for Teachers of French as a Second Language (Secondary) 1974.

Resource Materials — A Listing Prepared for Teachers of German as a Second Language (Secondary) 1974.

Resource Materials — A Listing Prepared for Teachers of Ukrainian as a Second Language (Secondary) 1975.

LATIN

Objectives

The specific objective of a program in any second language is to enable the learner to acquire a proficiency in a language other than his tongue. For the study of Latin, this takes the form of gaining proficiency in:

- (a) Reading and understanding Latin.
- (b) Learning more about his own language.
- (c) Learning about the ancient world and its values.
- (d) Comparing and contrasting his own values with those of the ancient world.
- (e) Appreciating the immense contribution of Latin to the English vocabulary.

A. SUGGESTED COURSE CONTENT IN THE JUNIOR HIGH SCHOOL GRADES

Text

Page and Beckett. *Gateway to Latin, I and II*. At the end of the Junior High School Latin program it is suggested that the students complete all of Gateway to Latin I and the first sixteen chapters of Gateway to Latin II.

B. SUGGESTED COURSE CONTENT IN THE SENIOR HIGH SCHOOL GRADES

Latin 10

Text

Breslove and Hooper. *Latin for Canadian Schools*.

Suggested Course Content

Lessons 1-27 inclusive; the last exercises in each lesson need not be emphasized, but knowledge is essential of: the first three declensions of nouns; the cases of nouns and their functions; the three declensions of adjectives; the four conjugations in the active in all tenses of the indicative, the imperative, the infinitive; questions; connectives, subordinate clause with *ubi*, *antequam*, *priusquam*, *simulat que*, *cum primum*, *dum*, *si nisi* and *cum*; prepositions; place and time expressions.

Latin 20

Text

Breslove and Hooper. *Latin For Canadian Schools*.

Suggested Course Content

Lessons 28-55 inclusive; the last exercises in each chapter need not be emphasized. Derivative studies should be done orally. Relative, interrogative, demonstrative, reflexive and intensive pronouns should be taught for reading recognition and use rather than have the students memorize the paradigms.

Latin 30

Text

Breslove and Hooper. *Latin for Canadian Schools*.

Suggested Course Content

Lessons 56-78 inclusive. The English to Latin should be reduced to a minimum: omit recall and grammatical work on adverbs of place, compounds of *fero*, and subordinate clauses in indirect discourse.

NOTE:

The Breslove and Hooper text is satisfactory for studying the core material in grammar, but in order to allow flexibility in the Latin Program, it is suggested that teachers be encouraged to utilize a large number of resource materials which emphasize the development of reading comprehension. In addition to the text, Latin readings in the following are examples recommended for this purpose, but this list is not exclusive. Of these, only *Selected Latin Readings* by Taylor and Prentice may be obtained through the School Book Branch. The others are available through the publishers only.

Selected Latin Readings — B. C. Taylor and K. E. Prentice. Dent

Using Latin — J. Gunmere. Longman

Lingua Latina — H. O. Oerberg. Nature Method Language Institute (110 East 42 Street, New York) (Vol. I and II)

Civis Romanus — J. M. Cobban and R. Colebourne. Methuen

Sodales Duo — A. O. Nash-Williams. Cambridge University Press

First Year Latin — C. Jenny. Macmillan

Romani Apud Se — G. C. Lightfoot. Macmillan

Elementary Latin Translation Book — Rev. A. E. Hallard. Copp Clark

Tironibus — G. M. Lyne. Edward Arnold, London, England

Balbus — G. M. Lyne. Edward Arnold, London, England

First Reading Book — G. M. Lyne. Edward Arnold, London, England

Collins' Latin Dictionary — Collins. Toronto

NOTE:

1. Students who have successfully completed the minimum content suggested for the Junior High School Latin program should register in Latin 20.
2. Teachers who are recommending students for Latin 20 should ensure that the suggested course content for Latin 10 as outlined in the Program of Studies has been completed.

MATHEMATICS

Objectives

While the different programs in mathematics have different specific objectives, the common general purposes of Senior High School mathematics courses are as follows:

1. To develop an understanding of mathematics as a creation of man and to develop an appreciation of the contribution of this discipline to the progress of civilization.
2. To develop precision in thought and expression.
3. To develop and maintain an understanding of the operations and concepts of mathematics.
4. To develop and maintain skill in mathematical operations.
5. To develop powers of logical analysis of problems and of presenting their solution in a clear and precise manner.

Mathematics 10, 20, 30, 31

This sequence of courses is designed for students in the academic pattern. The content is such that successful students may enter the university or a technical institute. These courses also contribute to general education.

MATHEMATICS 10

Recommended Texts

Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern, Intermediate Algebra*. Revised edition. Holt, Rinehart and Winston of Canada Ltd., 1969

Wilcox, Marie S. *Geometry, A Modern Approach*. Addison-Wesley Publishing Company, 1968

or

Jurgensen, Ray C., John E. Maier, and A. J. Donnelly. *Modern Basic Geometry*. Markham, Ontario: Houghton Mifflin Canada, Ltd., 1975

Objectives

1. To assist the student in the reasoning, discovery, and justification of algebraic processes through basic properties.
2. To encourage students to discover mathematical truths and patterns for themselves.
3. To review the concept of proof.
4. To develop the ability to write deductive proofs.

Course Outline

The topics listed below should comprise the basic outline for Mathematics 10. The teacher should feel free to supplement these with additional topics if he so desires. Teachers should consult the curriculum guide for additional references and suggestions.

A. Extension of Real Numbers

1. Natural numbers, integers, rational numbers
2. Rational numbers and decimal numerals
3. The system of real numbers
4. Properties of addition and multiplication in the set, of real numbers
5. Additional properties of the real number system: is equal to, is less than, order, density
6. Equations and inequalities
7. Absolute value

B. Algebra

1. Exponents and radicals
2. Operations on polynomials
3. Special products, factoring
4. Solving polynomial inequalities
5. Rational expressions — simplification
6. Rational expressions in open sentences.

C. Coordinate Geometry

1. Coordinate systems: line, plane
2. Distance, midpoints of segments, slope, parallel and perpendicular lines, proofs, special forms for equations of lines.

D. Geometry

1. Definitions: space, betweenness, segment, ray, angle, bisection, midpoint, perpendicular lines, linear pair, etc.
2. Postulates — existence, congruence of triangles, etc.
3. Proof — analogy, induction, deduction, implication, truth — values of statements
4. Theorems involving: congruent segments, angles and triangles, right angles, supplements of congruent angles, vertical angles, isosceles triangles, perpendicular bisectors, addition of segments and angles, exterior angles, parallel lines, measure of the angles of a triangle, right triangles.

MATHEMATICS 13

Text

Dean, J. E., and W. Ronald Graham. *Principles of Mathematics*. Book I. Holt, Rinehart and Winston of Canada, Ltd., 1969.

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach
2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts.
3. To develop powers of analyzing problems and presenting solutions in a clear manner
4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

The following topics indicate a suggested program of mathematics. Specific topics as they relate to chapters from a textbook are not indicated and teachers may use appropriate materials that appear to fit the interests, needs and abilities of their students. In cases where students follow the Mathematics 13, 23 sequence, attention should be given to those topics in Mathematics 13 that are prerequisite to Mathematics 23. The Curriculum Guide lists additional resource materials.

A. Descriptive Statistics

1. Definition, significance and relevance of statistics in modern society
2. Operations with significant digits and approximate numbers
3. Measures of central tendency
4. Applications

B. Geometry

1. Angles
2. Congruency
3. Similarity
4. Polygons: areas, polygonal regions
5. Parallel lines
6. Pythagorean Theorem

C. Trigonometry

1. Triangle similarity; Pythagorean Theorem
2. Angle measurement
3. Trigonometric ratios
4. Applications

D. Algebra

1. Fundamental operations — polynomials
2. Factoring
3. Fundamental operations — rational expressions
4. Exponents, scientific notation
5. Real Number Plane: Structure, graphs of linear equations, graphs of linear systems
6. Algebraic solution of linear systems
7. Relations, variation

MATHEMATICS 20

Recommended Texts

Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern Intermediate Algebra*. Revised edition. Holt, Rinehart and Winston of Canada, Ltd., 1969

Wilcox, Marie S. *Geometry, A Modern Approach*. Addison-Wesley Publishing Company, 1968

or

Jurgensen, Ray C., John E. Maier, and A. J. Donnelly. *Modern Basic Geometry*. Markham, Ontario: Houghton Mifflin Canada, Ltd., 1975

Objectives

1. To extend the students' understanding of algebraic processes.
2. To develop understanding and skill in the use of relations, and linear, quadratic, exponential and logarithmic functions.
3. To encourage students to discover mathematical truths and patterns for themselves.
4. To extend geometrical concepts to include circles, polygons, proportion and space geometry.

Course Outline

The topics listed below should comprise the minimum course for Mathematics 20. Teachers should consult the Curriculum Guide for teaching suggestions and a list of teacher references.

I. Algebra

- A. **Relations and Functions:** Functional notation, composition of functions, inverse relations and functions, proportion.
- B. **Quadratic Functions:** The general quadratic function, completing the square, applications.
- C. **Quadratic Equations and Inequalities:** Quadratic formula, properties of roots, fractional and radical equations, quadratic inequalities.
- D. **Complex Number System:** Properties of the complex numbers; quadratic equations with complex solutions.
- E. **Solution Sets of Systems:** Independent, inconsistent and dependent systems, comparison, substitution and addition methods of solving systems of equations.
- F. **Logarithmic Functions:** Scientific notation, approximating products, quotients, powers and roots, exponential equations, change of base.

II. Geometry

- A. **Quadrilaterals:** Parallelograms, Right Triangle Theorem, Triangle Inequalities.
- B. **Space Geometry:** Lines and planes in space, perpendicularity and parallelism in lines and planes, distance in space, dihedral angles.
- C. **Ratio, Proportion, Similarity:** Proportionality, proportional segments, similar triangles, square root, geometric mean, Pythagorean Theorem.
- D. **Circles and Spheres:** Tangents, chords, arcs, secants.

MATHEMATICS 23

Text

Dean, J. E., and W. Ronald Graham. *Principles of Mathematics*, Book II. Holt, Rinehart and Winston of Canada, Ltd., 1969.

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach

2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts
3. To develop powers of analyzing problems and presenting solutions in a clear manner
4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

The following general topics indicate the program in Mathematics. See the Curriculum Guide for additional useful materials.

A. Algebra

1. The set of real numbers
2. Exponents, radicals, logarithms
3. The slide rule
4. Quadratic equations
5. Equation systems: Inequalities, linear programming
6. Applications

B. Geometry

1. Nomenclature and relationships of the circle

C. Trigonometry

1. Six basic trigonometric functions
2. Trigonometric functions of special and quadrantal angles
3. Graphs
4. Applications

D. Probability

MATHEMATICS 15 - 25

Specific Objectives

1. To revitalize interest in mathematics through successful experiences at the student's level of understanding and through the use of novel approaches.
2. To extend the student's knowledge of mathematical operations and his ability to apply these.
3. To develop an understanding of the skills and knowledge necessary to cope with the problems of the consumer.

MATHEMATICS 15

Recommended Text

Saake, T. F. & B. Conchie. *Business and Consumer Mathematics*. Addison-Wesley, Don Mills, 1975

Course Outline

The following topics should be considered as a suggested list only. Teachers should feel free to modify the program to suit the needs and interests of their students.

Such modification may include the deletion and/or addition of some topics. In cases where students will follow the Mathematics 15, Mathematics 25 sequence, attention should be given to those topics of Mathematics 15 which are considered as desirable preparation for Mathematics 25. Not all topics listed are treated in the recommended text. Teachers should consult the Curriculum Guide for resource materials.

A. Numeration Systems.

B. Basic Algebra

1. Natural numbers, integers, fractions (common and decimal) and rational numbers.
2. Ratio and proportion
3. Equations
4. Problem solving through equations
5. Graphing

C. Geometry

1. Measurement
2. Similarity
3. Congruence

D. Probability and Statistics

E. Business Mathematics

1. Profit and loss
2. Banking services
3. Interest

MATHEMATICS 25

Recommended Text

Saake, T. F. & B. Conchie. *Business and Consumer Mathematics*.
Addison-Wesley, Don Mills, 1975

Course Outline

The following topics should be considered as a suggested list only. Teachers should feel free to modify the program to suit the needs and interests of their students. Such modification may include the deletion and/or addition of some topics. Not all topics listed are treated in the recommended text.

A. Management of Personal Property

1. Consumer Credit
2. Payroll and Commissions
3. Taxation
4. Automobile
5. Insurance
6. Budgeting
7. Stocks, bonds and investments
8. Real Estate

B. Application of Mathematics Principles* to

1. Construction
2. Sheet Metal

3. Electricity
4. Food Preparation
5. Machine Shop
6. Agriculture

MATHEMATICS 30

Recommended Texts

Nichols, Eugene D., Ralph T. Heimer, and E. Henry Garland. *Modern Intermediate Algebra*. Revised edition. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1969.

Vance, Elbridge P., Booklet: *Mathematical Induction-Conic Sections*. Don Mills, Ontario, Addison-Wesley Publishing Company, 1971.

* Teachers should use their discretion in utilizing basic concepts of algebra, geometry, and trigonometry in presenting this unit.

Teachers' References

1. Elliott, H. A., K. D. Fryer, J. C. Gardner, N. J. Hill. *Algebraic Structures and Probability*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1966.
2. Elliott, H. A., K. D. Fryer, J. C. Gardner, N. J. Hill. *Functions, Relations, and Transformations*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1966.
3. Vance, Elbridge P., *An Introduction to Modern Mathematics*, Second Edition, Don Mills, Ontario: Addison-Wesley Publishing Co. 1968.

Course Outline

The topics listed below comprise the basic outline for Mathematics 30. The teacher should feel free to use supplementary materials to aid in the teaching of these topics and should consult the curriculum guide for additional references.

1. Trigonometric Functions and their Applications
2. Vectors
3. Sequences, Series and Limits
4. Binomial Theorem
5. Permutations and Combinations
6. Probability Functions
7. Polynominal Functions
8. Conic Sections
9. Mathematical Induction

MATHEMATICS 31

NOTE: Mathematics 31 is made up of two parts — (1) Calculus AND (2) Vectors and Matrices.

Calculus

Texts

Either

Elliott, H. A., D. Fryer, J. C. Gardner and N. J. Hill. *Calculus*. Toronto: Holt, Rinehart and Winston of Canada, 1966.

or

Elliott et al. *Calculus, Complex Numbers and Polar Coordinates*. Toronto: Holt, Rinehart and Winston, 1974.

Teachers' References

Elliott et al. *Solutions for Calculus*.
Lang, S. *Calculus*. Addison-Wesley.

Course Content

- | | |
|--|-------------|
| 1. Slopes and Tangents | (Chapter 1) |
| 2. Distance, Velocity and Acceleration | (Chapter 2) |
| 3. Maxima and Minima | (Chapter 3) |
| 4. Sequences, Limits and Derivatives | (Chapter 4) |
| 5. Derivatives of Functions | (Chapter 5) |
| 6. Tangents, Derivatives and Graphs | (Chapter 6) |
| 7. Further Applications of Derivatives | (Chapter 7) |
| 8. Solutions of $Dy = f(x)$ | (Chapter 8) |
| 9. Areas | (Chapter 9) |

Vectors and Matrices

Texts

Either

Elliott et al. *Vectors and Matrices*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1967.

or

Elliott et al. *Vectors, Matrices and Algebraic Structures*. Toronto: Holt, Rinehart and Winston of Canada Ltd., 1972 or 1974 editions.

Teachers' References

Elliott et al. *Solutions to Vectors and Matrices*.

Davies, Philip J. *The Mathematics of Matrices*. Blaisdell Publishing Company, 1965.

Course Content

- | | |
|---|----------------------------|
| 1. Vectors | (Chapter 1) |
| 2. Algebraic Vectors | (Chapter 2) |
| 3. Length and Inner Product | (Chapter 3) |
| 4. Systems of Linear Equations | (Chapter 6) |
| 5. Matrices and Linear Transformations (optional) | (Chapter 7 of 1967 ed.) |

MATHEMATICS 33

Text

Dean, J. E., C. F. Hutchinson, and G. E. Moore. *Principles of Mathematics*, Book III. Holt, Rinehart and Winston of Canada, Ltd., 1970. .

Objectives

1. To assist the student in the learning process by developing mathematical concepts through an inductive approach
2. To use applications from various areas such as mensuration, science and the real world, for the purpose of reinforcing concepts
3. To develop powers of analyzing problems and presenting solutions in a clear manner

4. To develop and maintain an understanding of the operations and concepts of mathematics by using an essential core supplemented by exploratory topics.
5. To develop and maintain skill in mathematical operations by these means.

Course Outline

A. Algebra

1. Relations and Functions
2. Quadratic Functions
3. Maximum and Minimum values of quadratic functions
4. Variation
5. Exponential and Logarithmic Functions
6. Inverse functions
7. Permutations and Combinations
8. Binomial Theorem

B. Trigonometry

1. Sine Law and Cosine Law
2. Pythagorean relations and trigonometric equations
3. Vectors
4. Using trigonometry to solve vector problems

C. Elementary Descriptive Statistics

1. Frequency distribution tables, frequency histograms, frequency polygons
2. Quartiles and percentiles
3. Measures of variability
4. Standard Measure
5. Binomial Distribution
6. Curve of normal distribution

MUSIC

Objectives of the Secondary School Music Program

To help the student:

1. Increase his awareness of and sensitivity to music of his own and other cultures, past and present.
2. Increase his ability to understand, evaluate and become articulate about music.
3. Understand the ways and means of communicating through music.
4. Increase his ability to communicate through music.
5. Evaluate his own musical abilities.
6. Be a part of and understand the creative experience.
7. Become aware of the basic importance of music in his life and in the lives of men.
8. Increase his self-confidence.
9. Develop a philosophy of life by providing an acquaintance with musical works which convey universal truths.

The Secondary School Music Program

Grade VII, VIII and IX music courses are defined as Group A options in the *Junior-Senior High School Handbook*. The time allotment for these options is a minimum of 75 hours.

The Senior High School music program may be organized under the following headings: Music 10, 20, 30 (choral music); Music 11, 21, 31 (instrumental music); Music 12 (general music).

Where staff, facilities and enrollment permit, the students should be given the opportunity to choose from among Choral Music, General Music, or Instrumental Music as a means of satisfying the music option at each grade level in the Junior High School. Where course offerings must be limited, the interests and strengths of the students and staff should determine which alternatives will be offered. All music courses, therefore, should include the basic core of conceptual learnings in music as part of the course content as indicated below. The teacher should endeavor to help each student progress at least one level of understanding in each musical concept each year.

Guidelines for credit values and sequences of courses at the High School level are found in the *Junior-Senior High School Handbook*.

At the Junior High School level instruction should be individualized so that the students will not be prohibited from taking any of these music courses because they had not elected music the previous year. This could be achieved by having all the first year band or orchestra students in the same class even though some may be in Grade VII and some in Grade VIII, or by giving separate evaluations to the Grade VIII students who had taken music in Grade VII and those students who had not taken music in Grade VII.

Planning a Program

An effective program will take into account the backgrounds, interests, strengths, and limitations of the students in that program. Each instructor must, therefore, determine the present level of achievement of his students; the goal for which the students should strive; the means of accomplishing the objectives and of evaluating the success of the program.

2. Industry and division of labour
 - job and operation breakdowns
 - flow charts
 - labour allocations
3. Personnel organization
 - industrial organization
 - formal organization
 - informal organization
4. Research and development
 - elements of a salable product
 - industrial research
 - prototype development
5. Simulated industrial production
 - industrial production
 - physical problems
 - sociological problems
6. Technological changes
 - growth of knowledge
 - technological changes and man
7. Career opportunities

References

Junior Achievement Course Materials

Haws, Robert W. and Carl J. Schaffer. *Manufacturing in the School Shop*. American Technical Society, 1966. (Available from General Publishing Co. Ltd., Don Mills, Ontario.)

SCIENCE

The following Program of Studies statements which pertain to Secondary School Science are those prescribed by the Minister of Education. They are effective as of the following schedule:

Biology 10, Chemistry 10, Physics 10 — Fall term, 1977

Biology 20, Chemistry 20, Physics 20 — Semester or school year immediately following the introduction of the new "10" level course(s)

Biology 30, Chemistry 30, Physics 30 — Semester or school year immediately following the introduction of the new "20" level course(s)

School systems wishing to do so may introduce the "20" and "30" level courses at the same time the "10" level is implemented. In the period preceding the introduction of the "20" and "30" levels, the 1975 Program of Studies statements remain in effect.

Objectives of Secondary School Science for Alberta

The learning of science as an area of human endeavour, should provide the student with a scientific literacy which enables him to assume an active and useful role as a citizen in a democratic society. It may be assumed that this literacy is best achieved by considering the individual needs of students and through independent study and learning.

The objectives of Secondary School Science are:

1. To promote an understanding of the role that science has had in the development of societies:
 - a. history and philosophy of science as part of human history and philosophy
 - b. interaction of science and technology
 - c. effect of science on health, population growth and distribution, development of resources, communication and transportation, etc.
2. To promote an awareness of the humanistic implications of science:
 - a. moral and ethical problems in the use and misuse of science
 - b. science for leisure-time activities
3. To develop a critical understanding of those current social problems which have a significant scientific component in terms of their cause and/or their solution:
 - a. depletion of natural resources
 - b. pollution of water and air
 - c. overpopulation
 - d. improper use of chemicals
 - e. science for the consumer
4. To promote understanding of and development of skill in the methods used by scientists:
 - a. processes in scientific inquiry such as observing, hypothesizing, classifying, experimenting and interpreting data
 - b. intellectual abilities such as intuition, rational thinking, creativity, and critical thinking
 - c. skills such as manipulation of materials, communication, solving problems in groups, and leadership.
5. To promote assimilation of scientific knowledge:
 - a. emphasis on fundamental ideas
 - b. relevance of scientific knowledge through inclusion of practical applications
 - c. application of mathematics in science
 - d. interrelationships between the sciences
 - e. open-endedness of science and the tentativeness of scientific knowledge.

6. To develop attitudes, interests, values, appreciations, and adjustments similar to those exhibited by scientists at work.
7. To contribute to the development of vocational knowledge and skill:
 - a. science as a vocation
 - b. science as background to technical, professional and other vocations.

OBJECTIVES OF HIGH SCHOOL BIOLOGY

Students should:

1. Develop an understanding of the interdependence of living things upon themselves and upon climatic and soil factors.
2. Examine the dependence of man on his natural environment, the ways by which man is creating problems by upsetting the balance of nature, and ways by which man can live in greater harmony with nature.
3. Investigate the major differences which exist between various life forms and apply these principles by learning to identify various biological groups and species.
4. Understand the processes by which plants and animals function.
5. Learn through project and laboratory experiences the ways by which biologists carry out field and laboratory research.
6. Develop proficiency in the use of laboratory instruments.
7. Develop an understanding of the need for using a critical, quantitative approach when looking at biological data, especially as life forms and organic material often react in ways that are less predictable than is the case with inorganic material.

BIOLOGY 10 (3 Credits)

Objectives of the Biology 10 Program

- 10.1 To promote understanding and development of research skills by carrying out a project.
- 10.2 To study the principles of cell biology.
- 10.3 To gain a better understanding of the principles of classification.
- 10.4 To learn reasons for and techniques of collecting and maintaining appropriate biological specimens and to develop an appreciation of the importance of these activities.
- 10.5 To study the development and relationship of form, function and role in nature of the groups of life forms by the comparative study of representatives of the biological kingdoms.

Prescribed References

Biological Sciences Curriculum Study, *Biological Science: An Ecological*

Approach. BSCS Green Version, third edition. Agincourt: Gage and Co. (Rand McNally), 1973

Biological Sciences Curriculum Study, *Biological Science: An Inquiry into Life*. BSCS Yellow Version, second edition. Don Mills: Longman Canada (Harcourt Brace Jovanovich), 1968. The laboratory manual of this program is also to be used with Otto and Towle.

Otto, J. H. and A. Towle, *Modern Biology*. Toronto: Holt, Rinehart and Winston, 1973

Course Outline

Unit I Student Biology Project (about 10 hours)

The project can be on any biological topic but it should involve laboratory and/or field investigation and the presentation of a report. (Refer to the *Student Project Handbook* for further guidance).

Unit II Cellular Biology (about 5 hours)

1. Cell theory
 - a. historical aspects
 - b. current cell theory
2. Cellular organization and specialization
 - a. cells
 - b. tissues
 - c. organs
 - d. organ systems
3. Cell structure and function
 - a. cell wall and cell membrane
 - b. cytoplasm
 - c. nucleus
 - d. cytoplasmic organelles

Unit III Organismic Biology (about 50 hours)

1. Classification
 - a. Principles
 - i. bases of classification
 - ii. binomial nomenclature
 - b. Collecting and preserving techniques
 - c. Making and using dichotomous keys
2. Biological Kingdoms
 - a. Phylogeny — taxonomic alternatives
 - b. The classification, morphology, life cycles, comparative anatomy, and role in nature of life forms are to be studied through an examination of selected representatives of
 - i. Monera
 - ii. Protista
 - iii. Plantae
 - iv. Animalia

BIOLOGY 20

(3 Credits)

Objectives of the Biology 20 Program:

- 20.1 To develop an understanding of the principles of ecology.
- 20.2 To investigate selected principles of ecology by carrying out a research project.
- 20.3 To study the principles of genetics.
- 20.4 To explore current critical environmental problems.

Prescribed References

- Biological Sciences Curriculum Study, *Biological Science: An Ecological Approach*. BSCS Green Version, third edition. Agincourt: Gage and Co. (Rand McNally), 1973
- Biological Sciences Curriculum Study, *Biological Science: An Inquiry into Life*. BSCS Yellow Version, second edition. Don Mills: Longman Canada (Harcourt Brace Jovanovich), 1968. The laboratory manual of this program is also to be used with Otto and Towle.
- Otto, J. H. and A. Towle, *Modern Biology*. Toronto: Holt, Rinehart and Winston, 1973

COURSE OUTLINE

UNIT I — Student Ecology Project (about 15 hours)

The project topic may be in any area of ecology but should involve laboratory and/or field investigation and the presentation of a report.
(Refer to the *Student Project Handbook* for further guidance).

UNIT II — Environmental Biology (about 30 hours)

- 1. Ecological interrelationships and interactions
 - a. Biotic factors
 - b. Abiotic factors
 - c. Interaction between biotic and abiotic factors
 - i. food chains
 - ii. food web
 - iii. energy transfers
- 2. Biogeochemical cycles
 - a. Carbon - oxygen
 - b. Water
 - c. Nitrogen
 - d. Calcium
- 3. Individuals, populations and species
 - a. Characteristics of populations
 - b. Population changes
 - c. Factors influencing populations
- 4. Communities, ecosystems and biomes
 - a. Ecosystem structure
 - i. communities

- ii. niches
 - iii. habitats
 - b. Nutritional relationships
 - i. symbioses
 - ii. predation
 - iii. competition
 - iv. saprophytism
 - c. Biomes
 - i. microbial communities
 - ii. terrestrial biomes
 - iii. aquatic biomes
 - d. Biological succession
 - i. pioneer species
 - ii. pioneer community
 - iii. climax community
5. Man and the Environment
- a. Effect of population growth
 - b. Management of resources
 - c. Pollution
 - d. Political, social and economic factors.

UNIT III — Genetics (about 20 hours)

- 1. Mitosis and Meiosis
 - a. Phases of these processes
 - b. Significance
- 2. Heredity
 - a. Mendelian inheritance
 - b. Chromosome theory
 - c. Principles of genetics
 - i. multiple alleles
 - ii. linkage and crossing-over
 - iii. non-disjunction
- 3. DNA and RNA
 - a. Structure and function
 - b. DNA replication
 - c. Protein synthesis
- 4. Mechanisms of Genetic Change
 - a. Theories of evolution — historical aspects
 - b. Environmental influences on genes
 - c. Mutations and gene frequency changes
 - d. Speciation, geographic and reproductive isolation.

BIOLOGY 30

(5 Credits)

Objectives of the Biology 30 Program

- 30.1 To study the following processes:
- a. ingestion and absorption of raw materials, food and gases
 - b. movement of materials
 - c. elimination and excretion

- d. photosynthesis and other syntheses
- e. digestion
- f. energy relationships including respiration
- g. sensitivity and movement; nervous and hormonal control
- h. reproduction

30.2 To study and discuss relevant current biological problems.

30.3 To further develop investigative skills and understanding by carrying out a research project.

Prescribed References

- Kimball, J. W., *Biology* (3rd ed.). Don Mills, Ontario: Addison Wesley, 1974
- McElroy, W. D., et al, *Foundations of Biology*. Scarborough, Ontario: Prentice-Hall, 1968
- Abramoff, P. and R. G. Thompson, *Investigations of Cells and Organisms*. Scarborough, Ontario: Prentice-Hall, 1968
- or
- Calgary & District Biology Teachers' Association, *Investigations in Biology*. Don Mills, Ontario: Addison Wesley, 1977
- Wagner, R. H., *Environment and Man* (2nd ed.). Toronto, Ontario: George J. McLeod Ltd., 1974

COURSE OUTLINE

UNIT I — Functional Biology (About 75 hours)

1. Physical properties of cells
 - a. Chemistry of Cells
 - i. review of background chemistry
 - ii. biochemistry of cells
 - b. Physical processes
 - i. diffusion and osmosis
 - ii. active transport
 - iii. endocytosis and exocytosis
 - iv. enzyme function
2. Nutrition
 - a. Autotrophic nutrition
 - i. absorption and transport of water, minerals and gases
 - ii. translocation of nutrients
 - iii. photosynthesis
 - iv. chemosynthesis
 - b. Heterotrophic nutrition
 - i. alimentation
 - ii. absorption
3. Circulation in Animals
 - a. Heart and blood vessels
 - b. Blood and blood function
 - c. Lymph and lymph function
 - d. Control of circulation
4. Gas Exchange
 - a. Mechanism of breathing
 - b. Exchange and transport of gases
 - c. Control of gas exchange

5. Cellular respiration
 - a. Energy release
 - i. aerobic respiration
 - ii. anaerobic respiration
 - b. Energy utilization
 - i. muscular contraction
 - ii. absorptive activity
 - iii. electrochemical activity
 - iv. various syntheses
6. Excretion
 - a. Kidney function
 - b. Body fluid balance
7. Metabolic Controls
 - a. Genetic control of hormones and nervous responses
 - b. Hormonal
 - i. plants
 - ii. animals
 - c. Nervous
 - i. receptors
 - ii. conductors
 - iii. effectors
8. Human Reproduction

UNIT II — Current Biological Problems (About 25 hours)

The text by R. Wagner is recommended for this unit and should be used with discretion — see the curriculum guide for further guidance.

UNIT III — Student Project (About 20 hours)

Each student is expected to engage in a project to complete this program as in Biology 10 and 20. The project may be in any area related to biology. Encouragement may be given to have students investigate current biological problems or other topics that may focus on scientific, sociological, economic or political factors.

CHEMISTRY 10

Objectives of the Chemistry 10 Program:

After participating in the activities and completing the requirements of this course, the student should:

- 10.1 Know those concepts of chemistry as specified in the core outline.
- 10.2 Have competence in the language of chemistry, naming and writing the formulas and chemical equations.
- 10.3 Be skilled in techniques used by investigators in the field of chemistry.
- 10.4 Have a background knowledge related to the importance of chemicals and chemical processes in our economy.
- 10.5 Be aware of the possible harm to the environment which may arise from heavy metals.

- 10.6 Know the contributions made by various scientific investigators to the topics being studied.
- 10.7 Be aware of chemistry as a possible vocation and have an appreciation of its association with other sciences.

Organization of Program:

Approximately 40 hours of instructional time shall be devoted to the core topics and about 25 hours to elective topics. The content of the elective units is to relate to the core in one of three ways:

- an extensive study of a core topic (breadth)
- an in-depth, intensive study of a core topic, or
- a practical application of a core topic

Prescribed Core References

Ledbetter, E. W. and J. A. Young, *Keys to Chemistry*. Don Mills: Addison-Wesley, 1977

Ledbetter, E. W. and J. A. Young, *Laboratory Keys to Chemistry*. Don Mills: Addison-Wesley, 1977

Jenkins, F. et al, *ALCHEM 10*. Edmonton: E.P.S. District #7, 1976

Recommended Core References

Courneya, D. and H. McDonald, *The Nature of Matter*. Toronto: D. C. Heath and Company, 1976

Whitman, R. L and E. E. Zinck, *Chemistry Today*. Scarborough: Prentice-Hall Canada, 1976

IAC Modules:

Atkinson, G. and H. Heikkinen, *Reactions and Reason*.

Huheey, J., *Diversity and Periodicity*.

Don Mills: Fitzhenry and Whiteside (Harper & Row), 1973

Recommended Elective References (in addition to those listed above)

Worthington, G., *Chemistry of Metallurgy*. Agincourt: Book Society, 1977

Birenbaum, L., *Chemistry of Man and Molecules*. Agincourt: Book Society, 1975

Ashcroft, K., *Chemistry of Photography*. Agincourt: Book Society, 1976

Gordon, G. and W. Zoller, *Chemistry in Modern Perspective*. Don Mills: Addison-Wesley, 1975

OUTLINE OF CHEMISTRY 10 CORE

Concepts:

- 10.1 The activities of chemical laboratory experimentation require basic skills and knowledge.

Subconcepts:

- 10.1.1 Various techniques are used to make qualitative and quantitative observations.
- 10.1.2 Safety is of prime importance in the laboratory.
- 10.1.3 Laboratory investigations follow a pattern involving such skills as hypothesizing, observing, interpreting, etc.
- 10.1.4 The use of graphs in science enables the scientist to relate the variables of an experiment.

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| 10.2 Measurement units are used to describe the properties of matter. | 10.2.1 The development of the International System of Units (SI) provided a logical and consistent system of measuring length, mass, time, quantity and temperature. |
| | 10.2.2 The use of significant figures in measurements and calculations is a means of indicating precision. |
| 10.3 Matter is classified in a variety of ways. | 10.3.1 Matter is classified on the basis of physical or chemical properties. |
| | 10.3.2 Changes in matter are classified as being physical and/or chemical. |
| | 10.3.3 Matter may be classified as: |
| | 10.3.3.1 Mixtures or pure substances |
| | 10.3.3.2 Homogeneous or heterogeneous |
| | 10.3.3.3 Metals or non metals |
| | 10.3.3.4 Ionic or molecular |
| 10.4 The present atomic theory was developed on the basis of the accumulation of physical and chemical evidence. | 10.4.1 Many scientists contributed to the development of modern atomic theory. |
| | 10.4.2 Structure of an atom consists of a dense, positively charged nucleus surrounded by electrons. |
| | 10.4.3 The periodic table is a classification of the elements on the basis of their chemical and physical properties and atomic structure. |
| 10.5 Chemical reactions may be classified and are represented by a chemical language. | 10.5.1 IUPAC rules provide a consistent system for naming chemical substances and writing formulas for them. |
| | 10.5.2 The "mole" is a quantity of matter (6.02×10^{23} particles). |
| | 10.5.3 Chemical reactions may be represented by balanced chemical equations. |
| | 10.5.4 Chemical reactions may be classified according to type of reaction. |
| | 10.5.5 The writing and interpretation of balanced chemical reactions are based on the law of Conservation of Mass. |
| | 10.5.6 Chemicals and chemical reactions have many effects: environmental, economic, industrial, etc. |

Chemistry 10 Elective Topics

Elective topics are to be chosen from the following list. A minimum of one topic is to be studied.

- 10.1 Metallurgy
- 10.2 Chemicals in the Environment
- 10.3 Chemistry of Soap and Cosmetics
- 10.4 Chemistry of Photography
- 10.5 Locally Developed Unit

CHEMISTRY 20

Objectives of the Chemistry 20 Program:

After participating in the activities and completing the requirements of this course, the student should:

- 20.1 Know the chemical principles underlying the chemistry specified in the core outline.
- 20.2 Be skilled in using proper laboratory techniques used by chemists and laboratory personnel.
- 20.3 Comprehend the historical development of the chemistry principles being studied.
- 20.4 Have the capacity to apply the knowledge and skills of chemistry to other situations involving chemicals at home and in industry.
- 20.5 Have interests and attitudes toward chemistry that will assist in the choice of vocations.
- 20.6 Know the chemistry facts and principles related to the open discussion of social issues of current interest.

Organization of Program:

Approximately 40 hours of instructional time shall be devoted to the core topics and about 25 hours to elective topics. The content of the elective units is to relate to the core in one of three ways:

- a. an extensive study of a core topic (breadth)
- b. an in-depth, intensive study of a core topic, or
- c. a practical application of a core topic.

Prescribed Core References

Ledbetter, E. W. and J. A. Young, *Keys to Chemistry*. Don Mills: Addison-Wesley, 1977

Ledbetter, E. W. and J. A. Young, *Laboratory Keys to Chemistry*. Don Mills: Addison-Wesley, 1977

Gortler, L. B. et al, *Keys to Organic Chemistry*. Don Mills: Addison-Wesley, 1977

Jenkins, F. et al, *ALCHEM 20*. Edmonton: E.P.S. District #7, 1977

Recommended Core References

Courneya, D. and H. McDonald, *The Nature of Matter*. Toronto: D. C. Heath and Company, 1976

Whitman, R. L. and E. E. Zinck, *Chemistry Today*. Scarborough: Prentice-Hall, Canada, 1976

IAC Modules

Atkinson, G. and H. Heikkinen, *Reactions and Reason*

Huheey, J., *Diversity and Periodicity*

DeVoe, II., *Communities of Molecules*

Jarvis, B. and P. Mazzocchi, *Form and Function*

Don Mills: Fitzhenry and Whiteside (Harper and Row), 1973

Recommended Elective References (in addition to those listed above)

- Gordon, G. and W. Zoller, *Chemistry in Modern Perspective*. Don Mills: Addison-Wesley, 1975
- Martin, D. and J. Sampugna, *Molecules in Living Systems*. Don Mills: Fitzhenry and Whiteside (Harper and Row), 1973
- Hammill, J., *Water, Chemistry and Ecology*. Agincourt: Book Society, 1974
- Gordon, G., *The Delicate Balance*. Don Mills: Fitzhenry and Whiteside (Harper and Row), 1973
- Ashcroft, K. and J. Hammill, *Chemistry of the Car*. Agincourt: Book Society, 1976
- Pryde, L. T. et al, *Keys to Environmental Chemistry*. Don Mills: Addison-Wesley, 1975

OUTLINE OF CHEMISTRY 20 CORE

Solutions

Concepts:

- 20.1 Solutions are mixtures.
- 20.2 Formation of aqueous solutions is a chemical reaction.
- 20.3 The proportion of solute to solvent is represented by the concentration.

Subconcepts:

- 20.1.1 Solutions are homogeneous mixtures of solute(s) and a solvent.
- 20.1.2 Solutions may be composed of combinations of solids, liquids and gases.
- 20.2.1 Aqueous solutions play a very important part in chemistry.
- 20.2.2 The dissolving of a solute in a solvent may result in ions, or molecules in solution, and energy changes.
- 20.2.3 Solutions may be classified as electrolytes or non electrolytes.
- 20.3.1 Concentration of solutions is defined in terms of moles of solute per litre of solution, or moles of solute per cubic metre of solution.
- 20.3.2 Concentration and changes in concentration in solutions can be determined mathematically.
- 20.3.3 Solutions may be described as unsaturated, saturated, or supersaturated.
- 20.3.4 Solubility is the concentration of a solute in a saturated solution in equilibrium condition.
- 20.3.5 Factors that affect solubility are nature of solute and solvent, temperature and pressure.

Bonding

Concepts:

- 20.4 Chemical substances exist as elements bonded together.

Subconcepts:

- 20.4.1 Chemical bonds may be covalent or ionic.
- 20.4.2 Molecules formed by covalent bonds may be polar or nonpolar.
- 20.4.3 Bonding between molecules may be classified as dipole-dipole, or hydrogen bonding.

Organic Chemistry

Concepts:

20.5 Organic chemistry can be termed "Carbon Chemistry"

20.6 Hydrocarbon compounds form an important group of chemicals.

20.7 Hydrocarbon derivatives form another important group of chemicals.

Subconcepts:

20.5.1 The carbon to carbon bonding results in a great variety of compounds.

20.5.2 Carbon compounds are some of the most important substances on earth.

20.6.1 Hydrocarbons may be classified structurally as aliphatic or aromatic.

20.6.2 The chemical and physical properties of hydrocarbons are the result of their structure and composition.

20.6.3 Hydrocarbon reactions can be classified as combustion, substitution, and addition.

20.6.4 The hydrocarbons form an important base for industry in Alberta.

20.7.1 Major derivatives of hydrocarbons are alcohols, carboxylic acids, and esters.

20.7.2 The chemical and physical properties of these derivative compounds are the result of their structure and composition.

Chemistry 20 Elective Topics

Elective topics are to be chosen from the following list. A minimum of one topic is to be studied.

20.1 Chemistry of the Car

20.2 Environmental Chemistry

20.3 Polymers: Long Chain Molecules

20.4 Biochemistry

20.5 Qualitative Analysis

20.6 Locally Developed Unit

CHEMISTRY 30

Objectives of the Chemistry 30 Program:

After participating in the activities and completing the requirements of this course, the student should:

30.1 Know the facts and principles of chemistry as specified by the core outline.

30.2 Have competence in using the processes and techniques of chemistry in the identification of problems and the testing of proposed answers.

30.3 Be aware of the chemical factors related to issues of current interest.

30.4 Be informed about vocational and career opportunities in the chemical and technical fields.

- 0.5 Know the contributions that various investigators have made in the development of current chemical theories.
- 0.6 Understand the application of the concepts and principles learned in class to the production and use of such products as ethylene, gasoline, plastics, fertilizers, pesticides and foods.

Organization of Program:

Approximately 75 hours of instructional time shall be devoted to the core topics and about 45 hours to elective topics. The content of the elective units is to relate to the core in one of three ways.

- a. an extensive study of a core topic (breadth)
- b. an in-depth, intensive study of a core topic, or
- c. a practical application of a core topic.

Prescribed Core References

- Connor, P. R. et al, *Chemistry: Experiments and Principles*. Toronto: D. C. Heath, 1977
- Davis, J. E. et al, *Laboratory Manual for Chemistry: Experiments and Principles*. Toronto: D. C. Heath, 1977
- Penkins, F. et al, *ALCHEM 30*. Edmonton: E.P.S. District #7, 1977
- for Acid Base section:
- Richardson, R. A., *Proton Chemistry: the Reactions of Acids and Bases*. Rexdale: Wiley and Son, 1976

Recommended Core References

- Barry, R. W. et al, *Chemistry: Experimental Foundations*. Second Edition. Scarborough: Prentice-Hall, 1975
- Detcalfe, H. C. et al, *Modern Chemistry*. Toronto: Holt, Rinehart and Winston, 1974
- Young, J.A. and E. W. Ledbetter, *Keys to Oxidation-Reduction*. Don Mills: Addison-Wesley, 1974
- National Science Curriculum Materials Project:
- Slattery, R. T., *Acids and Bases*
- Langrehr, J. S., *Oxidation and Reduction*
- Doherty, J. P., *Energy in Chemical Reactions*
- Agincourt: Gage and Co., 1975

Recommended Elective References (in addition to those listed above)

- Gordon, G. and W. Zoller, *Chemistry in Modern Perspective*. Don Mills: Addison-Wesley, 1975
- Leager, S. L. and H. S. Stoker, *Chemistry: A Science for Today*. Agincourt: Gage and Company, 1973
- Jones, M. M. et al, *Chemistry, Man and Society*. Second Edition. Toronto: W. B. Saunders, 1976
- Ryde, L. T., *Environmental Chemistry*. Don Mills: Addison-Wesley, 1973
- National Science Curriculum Materials Project:
- Calcraft, P. M., *The Chemistry of Carbon*
- Craven, B., *Principles of Chemical Equilibrium*
- Harcourt, R. D., *Chemical Bonding*
- Stanley, R. J., *Rates of Chemical Reactions*
- Agincourt: Gage and Company, 1975

IAC Modules

Gordon, G., *The Delicate Balance*

Martin, D. and J. Sampugna, *Molecules in Living Systems*.

Don Mills: Fitzhenry and Whiteside (Harper and Row), 1973

TOPICAL OUTLINE OF CHEMISTRY 30 CORE

Chemical Energetics

Concepts:

30.1 Each substance has a definite and characteristic heat content or enthalpy.

30.2 Changes in matter involve a change in energy.

Subconcepts:

30.1.1 The enthalpy of a substance is the sum of the kinetic and potential energy of its molecules.

30.1.2 The heat of formation is the energy required or released as a substance is formed from its elements.

30.2.1 Changes that require energy are endothermic and those that release energy are exothermic.

30.2.2 More energy is involved in nuclear changes than in chemical changes, and in general more energy is involved in chemical changes than in phase changes.

30.2.3 In a phase, chemical, or nuclear change, the change in energy is the energy of the products less the energy of reactants.

30.2.4 The ΔH of chemical and phase changes can be determined calorimetrically.

30.2.5 By addition of ΔH values for known reactions, ΔH values for new reactions can be predicted.

30.2.6 The amount of energy released or absorbed in a phase, chemical or nuclear change is related to the number of moles of reactants.

Acids and Bases

Concepts:

30.3 Acids and bases can be defined in different ways.

30.4 The relative acidity of a solution can be measured.

Subconcepts:

30.3.1 Acids taste sour, change the color of indicators, etc. Bases taste bitter, change the color of indicators, etc.

30.3.2 Acids neutralize bases.

30.3.3 Arrhenius defined acids as those substances that increase the H_3O^+ (aq) concentration and bases as those that decrease the OH^- (aq) concentration.

30.3.4 Bronsted and Lowry defined acids as proton donors and bases as proton acceptors.

30.4.1 The strengths of acids and bases vary and are measures of the equilibrium condition.

30.4.2 The pH scale is a measure of the H_3O^+ (aq) concentration.

30.4.3 Indicator color may be used to determine pH.

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|---|---|
| 5 Acid-base reactions involve an exchange of protons. | 30.5.1 An acid-base reaction can be represented by a net ionic equation. |
| | 30.5.2 The relative strength of bases can be used to predict the equilibrium conditions. |
| | 30.5.3 Titration is one of the main techniques used in quantitative measurement of acid-base reactions. |
| | 30.5.4 The determination of quantitative relationships in acid-base reactions is part of stoichiometry. |

Oxidation-Reduction

- | | |
|---|--|
| Concepts: | Subconcepts: |
| 6 Redox reactions involve an exchange of electrons. | 30.6.1 Oxidation is defined as the loss of electrons. Reduction is defined as the gain of electrons. |
| | 30.6.2 Oxidizing agents cause oxidation and reducing agents cause reduction to occur. |
| | 30.6.3 A redox reaction can be represented by a net ionic equation. |
| 7 In a redox reaction the electron loss and gain must balance. | 30.7.1 Oxidation numbers or half-reactions illustrate the loss and gain of electrons. |
| | 30.7.2 Oxidation numbers or half-reactions may be used to balance equations. |
| | 30.7.3 Titration is one of the main techniques used in quantitative measurement of redox reactions. |
| | 30.7.4 The determination of quantitative relationships in redox reactions is part of stoichiometry. |
| 8 The electrical potential of a redox reaction can be predicted and measured. | 30.8.1 Reduction potentials are relative potentials of reduction half-reactions. |
| | 30.8.2 Oxidation potentials are negative reduction potentials. |
| | 30.8.3 The relative strengths of oxidizing and reducing agents are compared in terms of a table of reduction potentials. |
| | 30.8.4 The net potential of a redox reaction is the sum of the oxidation and reduction potentials. |
| | 30.8.5 The spontaneity of a redox reaction can be predicted from the relative strengths of the oxidizing agents or from the positive sign of the net potentials. |
| 9 Redox reactions involve electrical energy. | 30.9.1 Electrochemical cells convert chemical energy to electrical energy. |
| | 30.9.2 Electrolytic cells are used to convert electrical energy to chemical energy. |
| | 30.9.3 There are many applications of electrochemical and electrolytic cells. |

PHYSICS 10

Objectives of the Physics 10 Program

The student should:

- 10.1 Demonstrate knowledge of the general concepts of physics which provide the basis for understanding natural phenomena.
- 10.2 Develop an understanding of interactions among physical systems.
- 10.3 Develop attitudes and skills associated with the processes of physics necessary for scientific inquiry.
- 10.4 Develop an awareness of the humanistic implications of physics.
- 10.5 Become aware of the impact that physics has had on the development of society.
- 10.6 Develop an interest in physics as a science and appreciate its close association with the other sciences.

Organization of Program

Approximately 40 hours of instructional time shall be devoted to the core topics and approximately 25 hours to elective topics. Content of elective units is to relate to the core in one of three ways.

- a. an extension of a core topic (breadth)
- b. an in-depth, intensive study of a core topic
- c. a practical application of a core topic

Curriculum Core Topics

- 10.1 Physics as a Science and Physicists as Scientists
 - 10.1.1 Definition of Physics
 - 10.1.2 The Role of the Physicist
- 10.2 The Physics of the Early Greeks
 - 10.2.1 Ideas of Aristotle as the Basis of Ancient Science
 - 10.2.2 Natural and Violent Motion
 - 10.2.3 Union of Aristotelian Physics and Christian Theology
 - 10.2.4 16th Century Status of Aristotelian Physics
- 10.3 The Mathematics of Uniform and Non-Uniform Motion
 - 10.3.1 Motion in the Natural Environment
 - 10.3.2 Uniform Motion
 - 10.3.3 Graphical Description of Uniform Motion
 - 10.3.4 Non-Uniform Motion — Acceleration
 - 10.3.5 Graphical Description of Non-Uniform Motion
 - 10.3.6 Graphical Definition of Average Speed and Instantaneous Speed
 - 10.3.7 Equations of Uniformly Accelerated Motion
- 10.4 The Insights and Techniques of the 17th Century Used to Describe Motion

- 10.4.1 Achievements of the 16th Century Scientists
- 10.4.2 Galileo's New Approach to the Science of Motion
- 10.4.3 Motion of Freely Falling Bodies
- 10.4.4 Scientific Reasoning Applied to a Definition of Motion
- 10.4.5 Indirect Test of the Galilean Motion Hypothesis
- 10.4.6 Mathematics of Freely Falling Bodies
- 10.4.7 Galileo's 17th Century Inclined Plane Experiment
- 10.4.8 Critical Assessment of Galileo's Procedure
- 10.4.9 Consequences of Galileo's Experiments
- 10.4.10 More Recent Acceleration of Gravity Experiments

10.5 Vector Analysis of Motion

- 10.5.1 Cause, Pattern and Relativity of Motion
- 10.5.2 New Terms Which Describe Motion
- 10.5.3 Graphical Analysis of Motion Using Vector Symbolism
- 10.5.4 Algebraic Analysis of Directional Motion
- 10.5.5 Vector Analysis of Motion

10.6 Natural Forces and Newton's Explanation of Motion

- 10.6.1 Accounting for the Cause of Motion
- 10.6.2 Forces as Vector Quantities
- 10.6.3 Sign Convention of Force Vectors
- 10.6.4 Vector Analysis of One and Two Dimensional Forces
- 10.6.5 Newton's First Law of Motion
- 10.6.6 Experimental Verification of the Inertia Principle
- 10.6.7 Mass as a Fundamental Property of Matter
- 10.6.8 Newton's Second Law of Motion
- 10.6.9 System Internationale Unit of Force
- 10.6.10 Newton's Third Law of Motion
- 10.6.11 Differentiating Between Mass and Weight
- 10.6.12 Apparent Losses in Weight of Bodies

Elective Topics

Elective topics must be chosen from the following list. A minimum of one topic is to be studied.

- 10.1 Motion in the Heavens I
- 10.2 Motion in the Heavens II
- 10.3 Cosmology
- 10.4 Fluids at Rest
- 10.5 Science and Scientists
- 10.6 Space Exploration
- 10.7 Experimental Studies of Motion
- 10.8 A Locally Developed Unit

Note: Outlines for each elective, with the exception of 10.8, are provided in the Curriculum Guide along with a list of references and resource materials.

Prescribed Core Reference

Paul, D. et al, *Physics: A Human Endeavor, Unit 1, Motion*. Toronto: Holt Rinehart and Winston, 1976

PHYSICS 20

Objectives of the Physics 20 Program

The student should:

- 20.1 Demonstrate knowledge of the physical principles underlying the topics of physics specified in the course outline.
- 20.2 Develop skill in using experimentation, mathematical techniques, and other strategies as a means of substantiating knowledge of physics principles.
- 20.3 Become aware of the historical development of physics as a discipline.
- 20.4 Become aware of the social impact, past and present, of the application of physics principles.
- 20.5 Develop the ability to apply knowledge of physical principles to vocational and avocational interests.
- 20.6 Attain a deeper insight into environmental problems through understanding physical limitations.
- 20.7 Develop a positive attitude toward physics and an interest in science.

Organization of Program

Approximately 40 hours of instructional time shall be devoted to the core topics and approximately 25 hours to elective topics. Content of elective units is related to the core in one of three ways:

- a. an extension of a core topic (breadth)
- b. an in-depth, intensive study of a core topic
- c. a practical application of a core topic

Curriculum Core Topics

20.1 Momentum and the Interaction of Bodies in Nature

- 20.1.1 Conservation of Mass
- 20.1.2 Problem of Discovering a Quantity of Motion
- 20.1.3 The Collision of Bodies
- 20.1.4 Conservation of Momentum
- 20.1.5 Using the Law of Conservation of Momentum

20.2 Energy as a Key Concept in the Study of Science

- 20.2.1 Energy
- 20.2.2 Work
- 20.2.3 Power
- 20.2.4 Kinetic Energy
- 20.2.5 Potential Energy
- 20.2.6 Gravitational Potential Energy
- 20.2.7 Conservation of Mechanical Energy

- 20.2.8 Friction and Molecular Interaction
- 20.2.9 Heat as a Form of Energy
- 20.2.10 Law of Conservation of Energy

3 Nature and Propagation of Waves

- 20.3.1 Waves as Energy Carriers
- 20.3.2 Transverse and Longitudinal Waves
- 20.3.3 Physical Description of Waves
- 20.3.4 Reflection and Refraction of Waves
- 20.3.5 Diffraction and Interference of Waves

Elective Topics

Elective topics must be chosen from the following list. A minimum of one topic is to be studied.

- 1 Kinetic Theory of Matter II
- 2 The Physics of Sound
- 3 Energy: Resources, Crises, and Conservation
- 4 Heat, Calorimeters and Expansion
- 5 Physics and the Environment
- 6 Simple Machines
- 7 Physics and Personal Safety
- 8 A Locally Developed Unit

Note: Outlines for each elective, with the exception of 20.8, are provided in the Curriculum Guide along with a list of references and resource materials.

Prescribed Core Reference

Paul, D., et al, *Physics: A Human Endeavor, Unit 3, Energy and Conservation Laws*. Toronto: Holt, Rinehart and Winston, 1976

PHYSICS 30

Objectives of the Physics 30 Program

The student should:

- 1 Demonstrate knowledge of the physical principles underlying the topics of physics outlined in the course outline.
- 2 Develop a facility in using scientific processes to identify and to solve problems.
- 3 Develop background knowledge related to social issues of current interest.
- 4 Gain information and insights into vocational and career opportunities in the physics, engineering and allied sciences.

- 30.5 Develop the ability to discuss the importance of objectivity in scientific research.
- 30.6 Recognize and cite evidence of contributions that various investigators have made in the development of modern physical theories.

Organization of Program

Approximately 70 hours of instructional time shall be devoted to the core topics and approximately 45 hours to elective topics. Content of elective units is related to the core in one of three ways.

- a. an extension of a core topic (breadth)
- b. an in-depth, intensive study of a core topic
- c. a practical application of a core topic

Curriculum Core Topics

30.1 Nature and Behavior of Light

- 30.1.1 Propagation of Light
- 30.1.2 Reflection and Refraction
- 30.1.3 Interference and Diffraction
- 30.1.4 Dispersion
- 30.1.5 Polarization
- 30.1.6 Deficiencies of the Wave Model

30.2 Electric and Magnetic Fields

- 30.2.1 Electric Charges and Forces
- 30.2.2 Forces and Fields
- 30.2.3 Moving Charges
- 30.2.4 Moving Charges and Magnets

30.3 Electro-Magnetic Radiation

- 30.3.1 Electromagnetic Theory
- 30.3.2 Propagation of Electromagnetic Waves
- 30.3.3 Evidence for Electromagnetic Waves
- 30.3.4 The Electromagnetic Spectrum
- 30.3.5 The Ether Concept

30.4 The Structure of Matter

- 30.4.1 Chemical Nature of the Atom
- 30.4.2 Electrical Nature of the Atom
- 30.4.3 Quantum Behavior of Matter
- 30.4.4 Rutherford - Bohr Model of the Atom
- 30.4.5 Inadequacies of Atomic Models

30.5 Modern Physical Theories

- 30.5.1 Some Results of Relativity
- 30.5.2 Particle-Like Behavior of Radiation
- 30.5.3 Wave-Like Behavior of Particles
- 30.5.4 Significance of Mathematical Atomic Model
- 30.5.5 Heisenberg's Uncertainty Principle
- 30.5.6 Probability Interpretation of Quantum Mechanics

Elective Topics

Elective topics must be chosen from the following list. A minimum of two topics must be studied.

- Geometric Optics
- Optical Instruments
- Kinetic Theory of Matter II
- Special Relativity
- Alternating Current
- Electrical Circuits
- Equilibrium
- Meters, Motors and Generators
- The Speed of Light
- 0 Trajectories and Orbits
- 1 Energy Measurement
- 2 A Locally Developed Unit

Note: Outlines for each elective, with the exception of 30.12, are provided in the Curriculum Guide along with a list of references and resource materials.

Prescribed Core Reference

- Perford, F. J., et al, *Project Physics: Text/Handbook Unit 4, Light and Electromagnetism*. New York: Holt, Rinehart and Winston, Inc.
- Perford, F. J., et al, *Project Physics: Text/Handbook Unit 5, Models of the Atom*. New York: Holt, Rinehart and Winston, Inc., 1975

SCIENCE 11

Introductory Statement

Science 11, as a program, should continue to emphasize skills, concepts, attitudes, humanistic and social implications of science which have been developed for the elementary and junior high school grades.

In this course, content is significant only to the degree that it provides for the realization of other objectives of the course. Student interest should be a significant criterion in the selection of learning experiences.

Major Objectives of Science 11

1. To enhance the student's self-image and develop a positive attitude toward science. The student should:
 - a) pursue areas of personal interest
 - b) participate in activities in which he/she can experience success.
2. To develop a critical understanding of some current social problems which have a significant scientific component in terms of their cause and/or their solution. The students might study problems such as:
 - a) depletion of natural resources
 - b) pollution of water and air
 - c) over population
 - d) improper use of chemicals
 - e) science for the consumer.
3. To help students appreciate the scope of science. That is, the student should:
 - a) recognize that science is a basic part of modern living
 - b) recognize that science involves both inquiry processes and conceptual patterns
 - c) recognize the interaction of science, the arts and the humanities
 - d) recognize that the achievements of science and technology, properly used, are basic to the advancement of human welfare.

Rationale for the Science 11 Program

Student involvement in Science 11 should lead to successful experiences in learning and studying in various fields of science. During this course, it is hoped that students, as a result of their successful experiences, will develop an attitude which allows them to realize the changes on their lives which science brings about.

It is understood that the students taking Science 11 will have, in relation to science, a wide range of attitudes, interests, abilities, backgrounds, experiences, and knowledge. In order to assist teachers of these students in selecting relevant materials for their students, a wide range of resources for classroom use has been identified. These resources, however, are not meant to be restrictive and teachers should feel free to supplement them.

Recommended Resource Materials

1. Class activity units*
2. Student projects*

3. a) *Ideas and Investigations in Science-Biology*, by Wong and Dolmatz (Prentice-Hall)

This text contains five Biology Ideas

Idea 1: Inquiry

Idea 2: Evolution

Idea 3: Genetics

Idea 4: Homeostasis

Idea 5: Ecology

- b) *Ideas and Investigations in Science-Physical Science*, by Dolmatz and Wong (Prentice-Hall)

This text contains five Physical Science Ideas

Idea 1: Predicting

Idea 2: Matter

Idea 3: Energy

Idea 4: Interaction

Idea 5: Technology

NOTE: Individual Ideas in both Biology and Physical Science are available from the School Book Branch in soft cover format.

* For a sample activity unit and student projects refer to the Science 11 Curriculum Guide, 1971. For a more extensive listing of activity units and student projects (with references) refer to the special School Book Branch publication entitled *Science Activity Units and Projects* (Teacher reference only).

PHYSICS 22

Physics 22 is designed for students in Vocational High schools who are taking programs which articulate with the Institutes of Technology, e.g., Drafting, Electronics, Machine Shop. It is expected that students in other programs may elect this course. Teachers should feel free to adjust the content and method of presentation to the capabilities of their classes; however, it is felt that students in the articulated programs should substantially cover the program as outlined:

Texts

White. *Physics, An Exact Science*.

White. *Laboratory Exercises to Accompany Physics, An Exact Science*.

or

White. *Physics, An Experimental Science*.

White. *Laboratory Exercises to Accompany Physics, An Experimental Science*.

Course Outline

1. Introduction — Lessons 3, 4*.
2. Properties of Matter — Lessons 4, 5*, 6, 7*.
3. Light — Lessons 1, 2, 3*, 4, 5*, 6, 7, 8*, 9, 10*, 11, 12, 13*, 14, 15*.

* The lessons which are marked with an asterisk are laboratory exercises.

** Please note that the course has **not** been revised and teachers using *Physics, An Experimental Science* should choose the equivalent lessons to those found in *Physics, An Exact Science*.

PHYSICS 32

As for Physics 22, Physics 32 is designed for students in Vocational High schools who are taking programs which articulate with the Institutes of Technology and is expected to be equivalent to the Year "A" Physics program in the technical institutes. Information on course content and laboratory exercises follows:

Texts

White. *Physics, An Exact Science.*

White. *Laboratory Exercises to Accompany Physics, An Exact Science.*

or

White. *Physics, An Experimental Science.*

White. *Laboratory Exercises to Accompany Physics, An Experimental Science.*

Course Outline

1. Mechanics

Lessons 1, 2*, 3, 4*, 5, 6, 7, 8*, 9, 10, 11*, 12, 13*, 14, 15, 16*, 17, 18*, 19, 21, 23, 24, 27, 29, 30*, 31, 32, 33*.

2. Electricity

Lessons 1, 2, 3, 4*, 5, 6*, 7, 9.

3. Heat

Lessons 1, 3, 7*, 8, 9, 11, 12*.

* The lessons which are marked with an asterisk are laboratory experiments.

** Please note that the course has **not** been revised and teachers using *Physics, An Experimental Science* should choose the equivalent lessons to those found in *Physics, An Exact Science*.

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For Reference

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